The Refrigeration Service Engineer

VOL. 12 NO. 3 ★ ★ ★ MARCH, 1944

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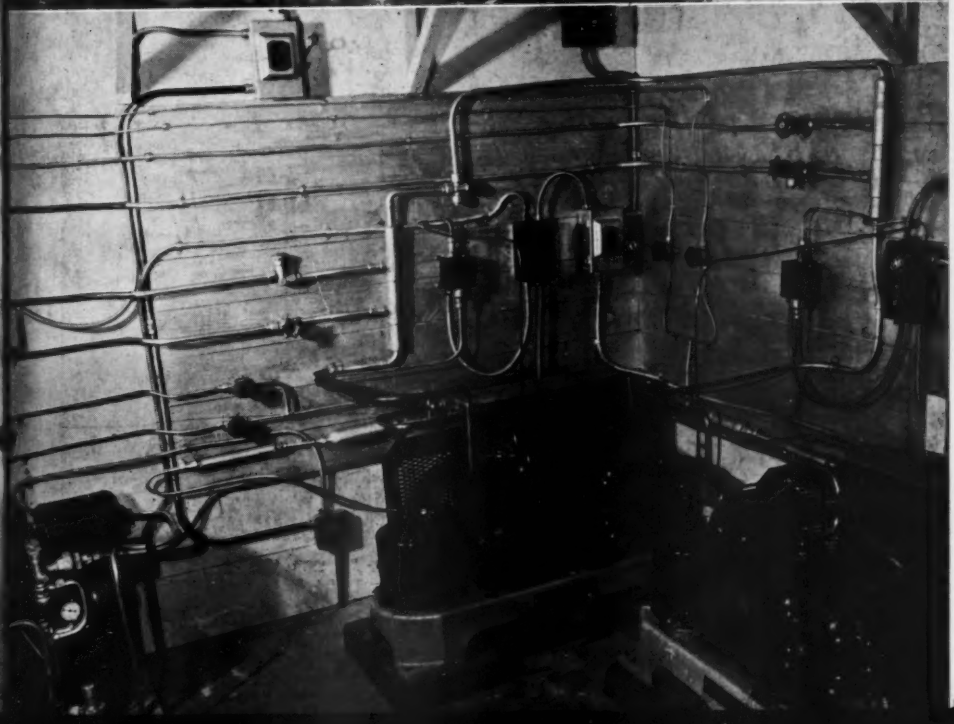
DETROIT



HERE'S THE SEAL FOR COLDSPOT!

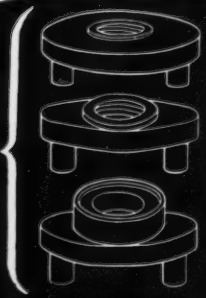
You can depend on the Chicago Seal you install on a Coldspot to please your customer, add to your good reputation, and eliminate the costly "call-back." Here's why. Chicago Seals give triple protection against leakage. Their bronze rings assure longer wear. Their self-adjusting sleeve locks mean perfect sealing on even bent or scored shafts. And they save your valuable time because they are so easy to install. Next time, seal that Coldspot right, with a Chicago Seal.

Your Jobber Has Them or Can Get Them for You

MODERN DESIGN

CHICAGO SEALS "MATCHED" TO COLDSPOT COUPLINGS

Chicago Seals are made in three models...each model "matched" for perfect mating with one of the three types of Coldspot couplings.



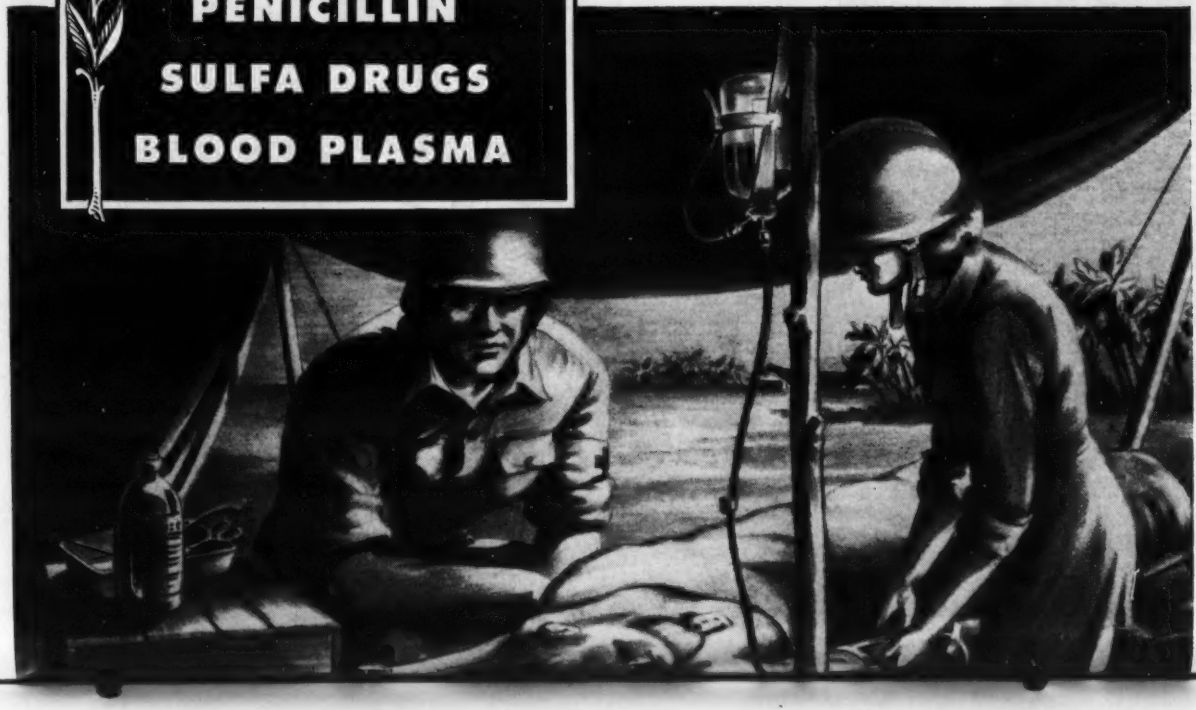
CHICAGO SEAL CO. 20 NORTH WACKER DRIVE CHICAGO 6, ILLINOIS

THE REFRIGERATING SERVICE ENGINEER. Nickerson & Collins Co., Publishers, 433 N. Waller Ave., Chicago 44, Ill. Published monthly. Vol. 12, No. 3, March, 1944. Entered as second class matter March 4, 1938, Chicago, Ill., under the Act of March 3, 1879. Subscription in the United States, $2.00 per year; all other countries, $3.00 per year.

How do you test
the PURITY of
SULFUR DIOXIDE and
METHYL CHLORIDE ?
Just look
for the name
ANSUL*
LIQUID
Sulfur Dioxide
ANSUL*
5, 10, 25, 70, 100 and 150 lb. Cylinders
LIQUID
Methyl Chloride
ANSUL*
3, 6, 15, 40, 60, 90 and 110 lb. Cylinders
*REG. U.S. PAT. OFF.
Available in carload lots or handy cylinders sized for servicemen's needs.
ORDERS FILLED PROMPTLY through your Ansul Jobber.
ANSUL CHEMICAL COMPANY
MARINETTE, WISCONSIN
Agents for Kinetic's "FREON-12"
RS-2-44

Miracles of Medicine

PENICILLIN
SULFA DRUGS
BLOOD PLASMA



Many large laboratories recently constructed to manufacture penicillin are equipped with "Detroit" Expansion Valves. In the making of this "miracle of medicine", accurate control of temperature and humidity is essential. There can be no deviation from the optimum conditions. Manufacturers of this equipment choose "Detroit" valves because of their reliable operation observed throughout an association of many years.

If you have need of expansion valves, solenoid valves or controls in your present production or in postwar planning, let us work with you on your problems.

Think for a minute what those words mean to a world at war, and what they will mean to a world at peace!

Think of the boys, wounded in action, who are now fighting again to return to their homes and the right to live their lives under the four freedoms.

Think of the blessings and relief from suffering these and as yet undiscovered new drugs will bring to the better world we all hope for.

Then, think that these developments would hardly have been possible without refrigeration and air conditioning.

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT 8, MICHIGAN

Canadian Representatives—Railway and Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators

DEUS EX MACHINA

IT HAS become apparent to design engineers in the last decade that the way to build a piece of refrigerating equipment is first to choose a refrigerant of the desired properties to accomplish a purpose and then to design the equipment around the refrigerant. The refrigerant is the "god of the machine"—the "deus ex machina" and is not bought on price but for what it will do. And as long as its cost is an insignificant part of the sales price and upkeep of the refrigerating machinery, it may be used to the advantage of the refrigerating manufacturing industry and the public.

Refrigerants of today are not of accidental origin. They are designed by skillful research chemists, and the research staff of Kinetic Chemicals, Inc., are continually synthesizing and experimenting with new non-toxic and non-flammable refrigerants which are offered to the industry as soon as they are proved to be of marked advantage for some purpose.

"Freon-22" is such a refrigerant, and refrigerating engineers throughout our nation are now working rapidly to design refrigerating machinery which will handle it with the greatest efficiency. Yesterday perhaps some of the "Freon-22" refrigerating machinery was just a modification of "Freon-12" design. Tomorrow the "Freon-22" machinery will be designed especially for "Freon-22."

"Freon-22" is what engineers with great enthusiasm call a "natural" for low temperature refrigeration such as locker plants, farm freezers, and cold storage houses, and new designs in refrigerating machinery will be offered ice manufacturing plants which will permit of the lowering of costs in this industry.

KINETIC CHEMICALS, INC.
Tenth and Market Streets, Wilmington, Del.

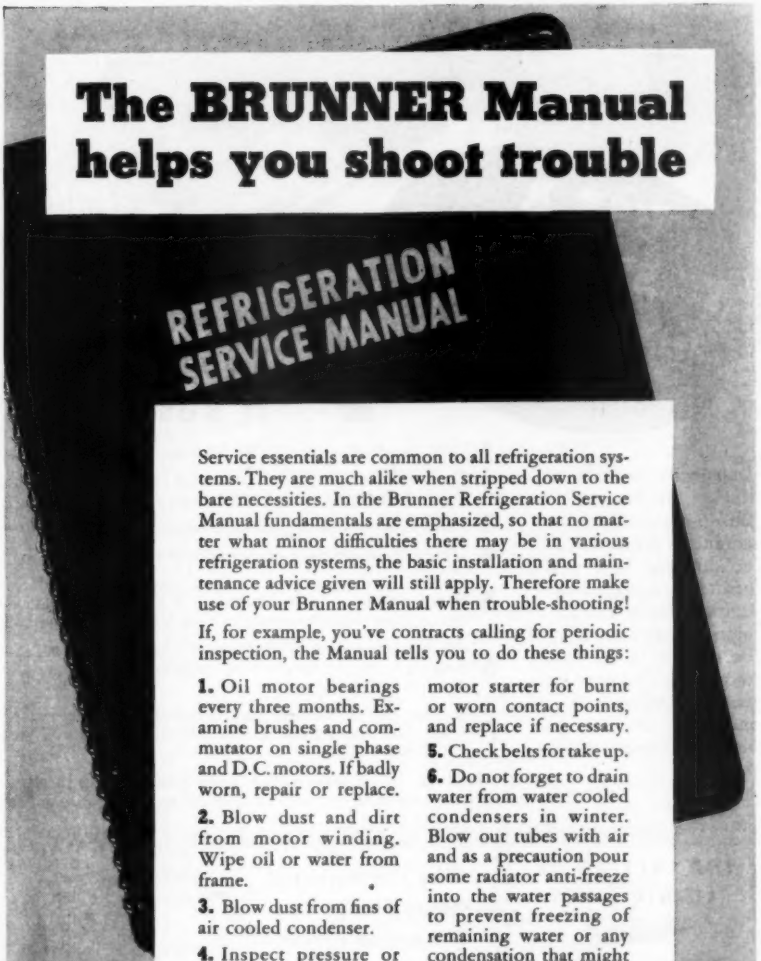
"Freon*-22"

*"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS

KINETIC
REG. U.S. PAT. OFF.

A "Freon" Safe Refrigerant for Every Purpose and for Every Machine Design

The BRUNNER Manual helps you shoot trouble



Service essentials are common to all refrigeration systems. They are much alike when stripped down to the bare necessities. In the Brunner Refrigeration Service Manual fundamentals are emphasized, so that no matter what minor difficulties there may be in various refrigeration systems, the basic installation and maintenance advice given will still apply. Therefore make use of your Brunner Manual when trouble-shooting!

If, for example, you've contracts calling for periodic inspection, the Manual tells you to do these things:

1. Oil motor bearings every three months. Examine brushes and commutator on single phase and D.C. motors. If badly worn, repair or replace.

2. Blow dust and dirt from motor winding. Wipe oil or water from frame.

3. Blow dust from fins of air cooled condenser.

4. Inspect pressure or temperature switch, also motor starter for burnt or worn contact points, and replace if necessary.

5. Check belts for take up.

6. Do not forget to drain water from water cooled condensers in winter. Blow out tubes with air and as a precaution pour some radiator anti-freeze into the water passages to prevent freezing of remaining water or any condensation that might occur during the winter.

Many valuable service hints, taken from the Brunner Refrigeration Service Manual, will be included in future advertisements. Right now it is your job to secure more efficient performance and longer life from the refrigeration units you are called upon to service. The Brunner Manual can help you do the job. Use it! If you do not have a copy, we will be glad to furnish one for only $2.50. Write to:

BRUNNER

Brunner Manufacturing Company, Utica, New York, U. S. A.

USE A "Y" STRAINER

for Large Capacity and Long Service

7 Reasons Why You'll Like It Best!

Due to its features of design the Henry "Y" Strainer not only gives complete protection to condensing unit and control equipment against scale and foreign matter that may be present in the system, but it also permits easy servicing with a minimum of interruption to plant operation.

1. Light in weight – due to its tubular construction.
2. The strainer screen can be easily and quickly cleaned without removing the strainer from the line.
3. "Wave-Flow" design results in negligible pressure drop.
4. Cleaning seldom necessary because of large screen area.
5. Internal baffle prevents injury to the heavily reinforced monel screen. In this connection it is well to remember that suction velocities may exceed 5,000 feet per minute.
6. Patented forged steel clean-out flange is distortion-proof, making a tongue and groove anchored-gasket joint with strainer body.
7. Strainer is of welded steel construction. Rustproofed. Available with copper sockets for O.D. tubing and steel F.P.T. connections for iron pipe.

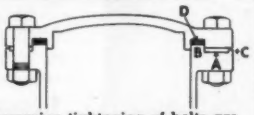
Available in ⅜" to 3⅜" O.D.S. sizes and in 1" to 3" F.P.T. sizes with screen area ranging from 23 to 175 square inches.

FOR SUCTION OR LIQUID LINES

The Henry "Y" Strainer when used in suction line service will not trap oil if the strainer is installed on its side as shown.

For liquid line service the Henry "Y" Strainer can be installed either in a horizontal or vertical position.

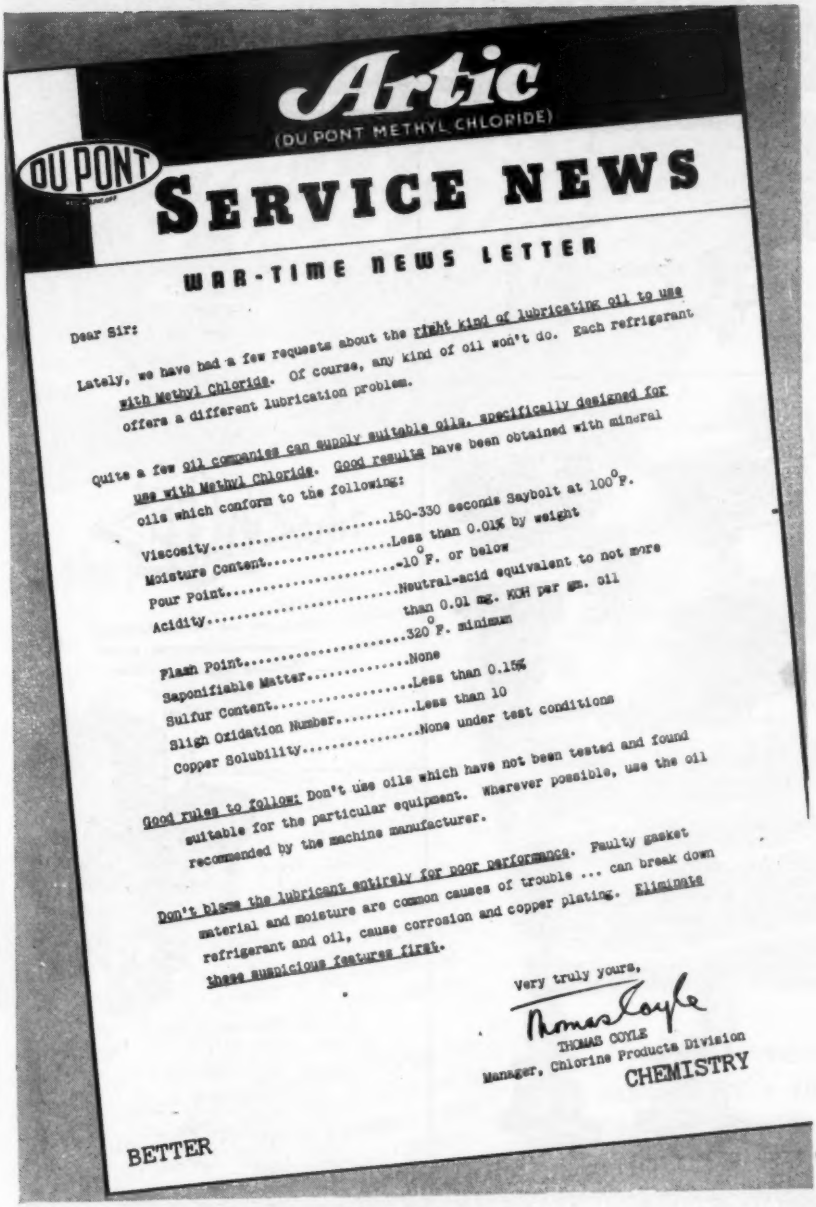
Why the Patented Henry Flange Is *Distortion Proof*



Strains due to uneven or excessive tightening of bolts are absorbed in the recessed area (A) and cannot be transferred to the flange gasket face (B) made up of the inner flange rim and the strainer housing to which the flange is welded. Lip on outer flange rim (C) acts as a "stop" to prevent excessive drawing up of bolts. Gasket is located in recessed area (D). Flange makes tongue and groove anchored-gasket joint with strainer.

HENRY VALVE COMPANY
3260 WEST GRAND AVE., CHICAGO 51, ILL.
SOLD BY LEADING JOBBERS EVERYWHERE

PACKLESS AND PACKED VALVES • STRAINERS • DRYERS FOR REFRIGERATION AND AIR CONDITIONING
AMMONIA VALVES • FORGED STEEL VALVES AND FITTINGS FOR OIL, STEAM AND OTHER FLUIDS



Artic
(DU PONT METHYL CHLORIDE)

DU PONT

SERVICE NEWS

WAR-TIME NEWS LETTER

Dear Sir:

Lately, we have had a few requests about the right kind of lubricating oil to use with Methyl Chloride. Of course, any kind of oil won't do. Each refrigerant offers a different lubrication problem.

Quite a few oil companies can supply suitable oils, specifically designed for use with Methyl Chloride. Good results have been obtained with mineral oils which conform to the following:

Viscosity	150-330 seconds Saybolt at 100°F.
Moisture Content	Less than 0.01% by weight
Pour Point	-10° F. or below
Acidity	Neutral-acid equivalent to not more than 0.01 mg. KOH per gm. oil
Flash Point	320° F. minimum
Saponifiable Matter	None
Sulfur Content	Less than 0.15%
Sligh Oxidation Number	Less than 10
Copper Solubility	None under test conditions

Good rules to follow: Don't use oils which have not been tested and found suitable for the particular equipment. Wherever possible, use the oil recommended by the machine manufacturer.

Don't blame the lubricant entirely for poor performance. Faulty gasket material and moisture are common causes of trouble ... can break down refrigerant and oil, cause corrosion and copper plating. Eliminate these suspicious features first.

Very truly yours,

Thomas Coyle

THOMAS COYLE
Manager, Chlorine Products Division

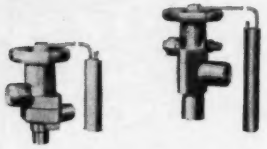
CHEMISTRY

BETTER

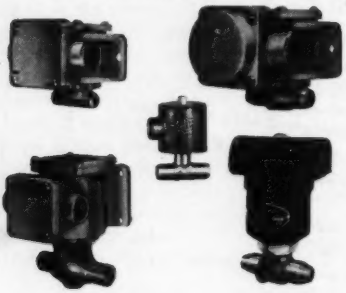
Again—Alco Has the *COMPLETE* Line

This Time Designed Especially for Naval and Marine Use

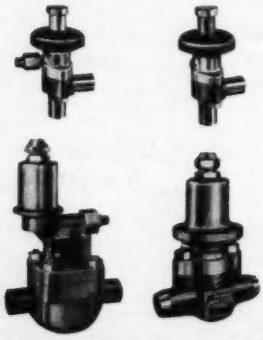
Thermostatic Expansion Valves for Navy and Maritime Service



Solenoid Valves for Navy and Maritime Service



Evaporator Pressure Regulators for Navy and Maritime Service



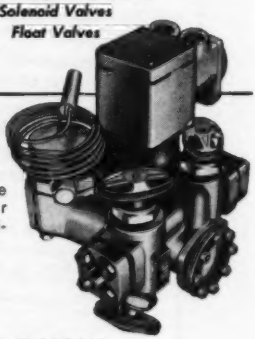
The proved advantages of Alco's standard valve design were readily adaptable to these special valves to meet the exacting requirements of Navy and Marine service.

These advantages, such as atomic hydrogen welding, easy servicing, and sturdy construction, available in our standard valves, are equally valuable for normal civilian requirements.

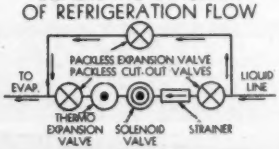
ALCO

Designers and Manufacturers of
Thermostatic Expansion Valves
Pressure Regulating Valves
Solenoid Valves
Float Valves

Control Valve Manifold for Navy and Maritime Service

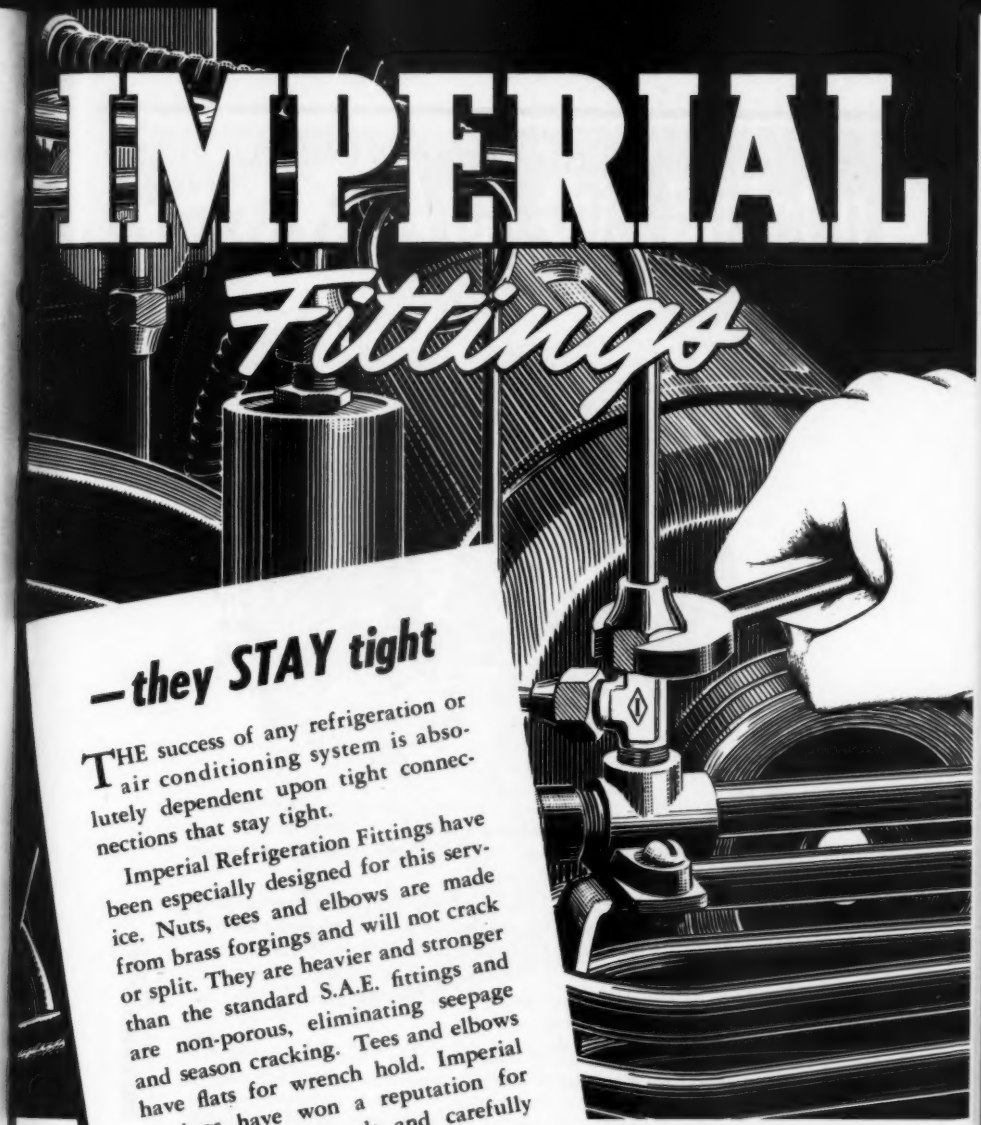


SCHEMATIC DIAGRAM OF REFRIGERATION FLOW



ALCO VALVE COMPANY—857 Kingsland Avenue, St. Louis, Missouri

IMPERIAL *Fittings*



—they STAY tight

THE success of any refrigeration or air conditioning system is absolutely dependent upon tight connections that stay tight.

Imperial Refrigeration Fittings have been especially designed for this service. Nuts, tees and elbows are made from brass forgings and will not crack or split. They are heavier and stronger than the standard S.A.E. fittings and are non-porous, eliminating seepage and season cracking. Tees and elbows have flats for wrench hold. Imperial Fittings have won a reputation for their accurate threads and carefully machined seats.

The record of Imperial Fittings over the years on every type of application has shown that they consistently make tight connections that *stay* tight.

THE IMPERIAL BRASS MFG. CO.
534 So. Racine Avenue, Chicago 7, Illinois
See Your Jobber

FITTINGS ★ VALVES
DEHYDRATORS ★ FILTERS
FLOATS ★ CHARGING LINES
TOOLS FOR CUTTING,
FLARING, BENDING,
COILING, PINCH-OFF
AND SWEDGING

THE STANDARD OF *Enduring Craftsmanship*

First successful cultivation of the Mission Grape, San Diego, Calif., 1769

The skilled craft of Viniculture—the growing of grapes and the production of wine—has been responsible for the development of one of America's oldest and most extensive agricultural industries.

Both the European vines and the skilled craftsmanship of European Vintners found their way to America through the Spanish Mission Fathers of Mexico and California. Their leader, Father Serra, through his successful cultivation of the Mission Grape, founded the great California wine industry of today.

Many great industries stem from the qualities of patient skill and striving for perfection so inherent in fine craftsmanship. It is the maintenance of those same qualities of craftsmanship within Virginia's every department that produces its quality products.

"EXTRA DRY ESOTOO", "V-METH-L" AND METHYLENE CHLORIDE

BUY WAR BONDS & STAMPS

"VIRGINIA" REFRIGERANTS

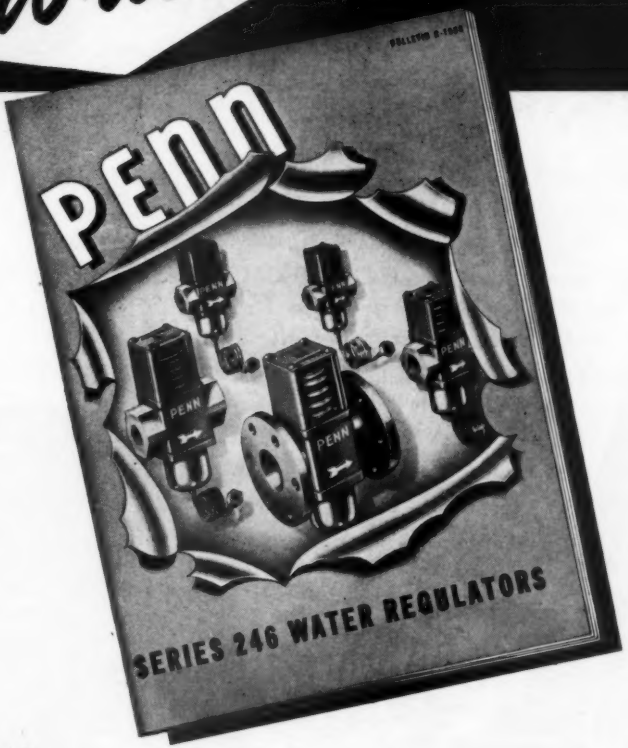
AGENTS FOR KINETIC'S "FREON-12"

VIRGINIA SMELTING CO.

WEST NORFOLK, VIRGINIA

VIRGINIA

Write for this Bulletin



HERE'S complete information about the exclusive advantages of Penn's new water valves. Learn why these valves are more efficient and dependable over a longer period for all refrigeration applications. *Sent Free* and without obligation, of course. Write today for Bulletin R-1986.

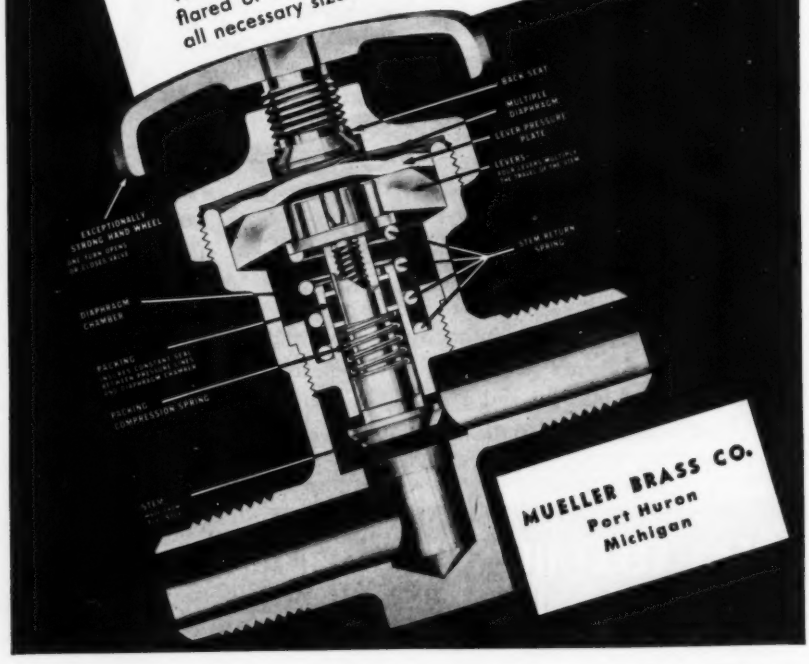
PENN ELECTRIC SWITCH CO., Goshen, Indiana

Increased Diaphragm Life
PROLONGS THE SERVICE LIFE OF THE VALVE

Our TRIPL-SEAL DIAPHRAGM VALVES are constructed upon a new and revolutionary principle involving a minimum of movement. The greatly increased multiple diaphragm is never deflected past its normal center; thus giving it much greater service life. It provides positive sealing at three essential points. The valve has positive and easy closing provided by a single turn of the hand wheel.

Body and cap are of seepless forged brass; maximum mounting strength is provided.

Valves are furnished in two way and angle type—flared or solder type ends, and a complete range of all necessary sizes.



MUELLER BRASS CO.
Port Huron
Michigan

Between service calls you can be planning that big future in refrigeration . . .

YOUR JOB THESE DAYS, of course, is keeping existing refrigeration equipment going—operating efficiently, no matter how old, thanks to your expert servicing.

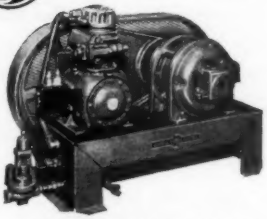
BUT ONE DAY, REMEMBER the war will be over, releasing materials and manpower for thousands of new units—many as replacements, but many for entirely new uses.

YOU CAN BE READY to take advantage of these profit opportunities in refrigeration, if you plan *now.* From today's goodwill is coming tomorrow's sales.

G-E PRESTIGE CAN HELP YOU make the most of that goodwill . . . prestige growing out of General Electric's war-years of building refrigeration equipment for the Army, the Navy, and American industry-at-war.

"Scotch Giant"

* * *



Condensing Unit

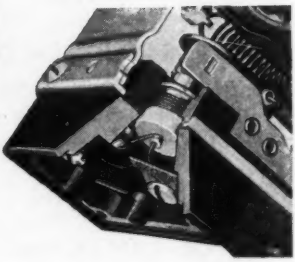
General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 4713, Bloomfield, New Jersey.

☆ BUY WAR BONDS ☆

Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA", Sundays, 10 P. M., E W T, N B C . . . "THE WORLD TODAY" News, Every Weekday 6:45 P. M., E W T, C B S

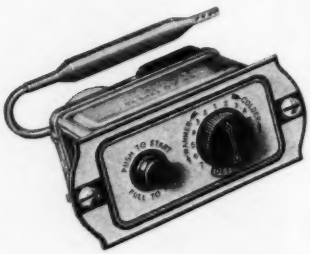
GENERAL ELECTRIC

Commercial and Industrial Refrigeration



The word "convoy" conveys a meaning and feeling of protection . . . of security.

The protecting "convoy" of a Rancostat that guards the equipment from damage is the Ranco Overload Protection Unit. It gives accurate and consistent protection. The heater coil is embedded and completely enclosed in ceramic material. The coil maintains the correct location inside the solder well and transmits its heat uniformly to the metal parts of the well. After mounting no "positioning" is ever required by the service man. The overload latch is machined to form an exact hook to fit the teeth of the ratchet, preventing any binding or hanging up when the ratched wheel moves on the solder well.



In addition to efficiency, Rancostats are beautifully designed. You can be proud and confident when you install Ranco controls.

Ask your Jobber

Ranco Inc.

COLUMBUS, OHIO

The Refrigeration Service Engineer

Vol. 12 No. 3

March, 1944

A Monthly Illustrated Journal Devoted to the Interests of the Refrigeration Service Engineer in the Servicing of Domestic and Small Commercial Refrigeration Systems and Oil Burners

Official Organ
REFRIGERATION SERVICE ENGINEERS SOCIETY

The Cover

Two photos of the Borden Milk plant, Baton Rouge, La., contributed by E. A. Summer, National Board of Directors, R.S.E.S. Engineer in charge is O. J. Goldsmith, member of the Louisiana Chapter. The equipment shown in the lower picture handles the counter in the sales room.

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Telephone Lexington 2-4816

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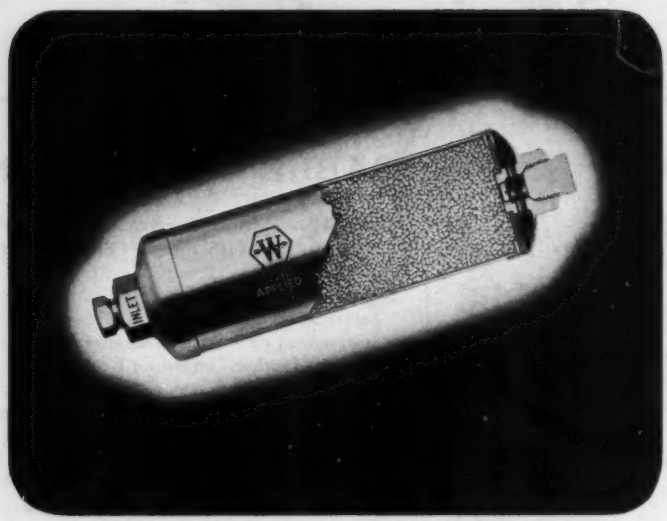


REFRIGERATION SERVICEMEN!

Here's a rechargeable Silica Gel Dryer and Filter you can use with absolute confidence! Because Silica Gel does not powder or break down, no felts or organic filters are required or used which in themselves might clog or impede the flow of refrigerant through a dryer. A generous number of fine mesh stainless steel screens are used and, as Silica Gel will not pack or cake, full flow is assured even at zero temperatures!

Free: Write for our 38-page, fully illustrated Weatherhead Refrigeration Catalog.

Look Ahead with ⟨W⟩

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND, OHIO

Manufacturers of vital parts for the automotive, aviation, refrigeration and other key industries.

Plants: Cleveland, Columbia City, Ind., Los Angeles
Canada — St. Thomas, Ontario

The Refrigeration Service Engineer

Vol. 12, No. 3 CHICAGO, MARCH, 1944 $2.00 Per Annum

Survey Lists Refrigerating Equipment Containing Metals in Which Methyl Chloride Must Not Be Used

Under the direction of Paul B. Reed, chairman of its Wartime Educational Committee, the Refrigeration Service Engineers Society recently conducted a survey among manufacturers to determine which equipment contains aluminum, zinc or magnesium, and which must not be charged with methyl chloride. This survey was made primarily in the interest of safety to provide quick reference for the service engineer who might be tempted, under the pressure of an impatient owner, to take a chance on changing a system from Freon to methyl chloride. This information was originally issued in bulletin form for members of the Society. With their permission it is reproduced here.—Editor.

DUE to the shortage of Freon-12, many refrigeration systems that have lost their refrigerant charge will be charged with methyl chloride, with the alternative of taking them out of service. Within the past few months a good deal of publicity has been given this subject in an effort to acquaint the service and maintenance men with the points to be observed in changing a system from Freon-12 to methyl chloride.

But, there are some systems in which methyl chloride *must not* be used—those in which aluminum, magnesium or zinc or their alloys are used internally or in such manner that the methyl chloride can come in contact with them. These metals are attacked by the methyl chloride, resulting in the formation of a highly flammable gas and a black gummy sludge. So methyl chloride must not be used in systems containing aluminum, zinc or magnesium or their alloys.

When a service man is called on a job requiring Freon-12 and finds it necessary to change over to methyl chloride and the A.S.A. code permits him to do so he does not often know whether or not the system contains aluminum, zinc or magnesium. At present it is necessary for him to first write the manufacturers of the equipment and get this information but this would take a great deal of time and at his customer's prodding he may take a chance, possibly with unfortunate results.

Therefore, the Wartime Educational Committee of the Refrigeration Service Engineers Society, headed by Paul B. Reed, collected this information on as many makes and models of condensing units, evaporators, expansion valves, solenoids, etc., as possible, for distribution to its members. As a means of collecting this information, a data sheet was mailed to manufacturers of refrigerating equipment. A summarization of the returns of the data sheet and the explanatory letters attached to them is arranged alphabetically by manufacturers in the following pages.

By giving wide publicity to this information, the Society believes it may:

1. Prevent accidents that may cause personal injury and property damage.

2. Save embarrassment and possible damage to the reputation of the manufacturers of the equipment.

3. Provide the service engineer with easy reference material to guide him in contemplated changes from Freon-12 to methyl chloride.

The information specifies models of individual manufacturers which contain aluminum, zinc or magnesium. Methyl chloride *must not* be used in these models. This can not be interpreted to mean, however, that the manufacturer endorses the use of methyl chloride in other models. Some manufacturers have stated definitely that methyl can be used. Where it is not definitely stated other design factors may prohibit the use of methyl and the manufacturer should be consulted.

Survey of Equipment Containing Aluminum

ALCO VALVE CO., St. Louis, Mo.—Type SL solenoid valve made prior to 1939 contains an aluminum seat. There is no means of identification other than the model number and year of manufacture. Replaceable seats are available for these models. 1939 and all subsequent models do not contain aluminum.

ALLIED STORE UTILITIES CO., St. Louis, Mo. (same as Hussmann-Ligonier Co.)—They do not manufacture any products containing aluminum.

AMERICAN BLOWER CORPORATION, Detroit, Mich.—Makers of blower type air conditioning coils. No equipment used in refrigeration work contains aluminum.

AMERICAN INJECTOR CO., Detroit, Mich.—Makers of refrigerant control equipment. None contains aluminum, zinc or magnesium.

AUTOMATIC PRODUCTS CO., Milwaukee, Wis.—Manufacturer of refrigerant controls. There is no aluminum contained in any of their products which may come in contact with the refrigerant.

BAKER ICE MACHINE COMPANY, INC., Omaha, Nebraska—Manufacturers primarily of compressors and condensing units. They have not manufactured or distributed at any time any compressors or condensing units in which aluminum, zinc or magnesium were used internally, or in such a manner that these metals would come in contact with the refrigerant.

BASTIAN-BLESSING CO., Chicago, Ill.—Makers of soda fountains, ice cream cabinets, etc., state, "We did not use aluminum, zinc or magnesium in any low sides manufactured by us. (See Universal Cooler Corp. and Servel for information on Bastion-Blessing condensing units.)

BRUNNER MFG. CO., Utica, N. Y.—Makers of air compressors, refrigerating equipment and condensing units. No models manufactured by the company contain aluminum except models A100FC or FL, between the serial numbers 68000 and 77000. All other models with the exception of these mentioned contain no aluminum and can be used with methyl chloride. The only aluminum contained in the A100FC or A100FL models is in the end buttons in the wrist pins. These can be replaced with replaceable buttons of brass now available.

BRUNSWICK-BALKE-COLLENDER CO., Chicago, Ill.—Makers of bottle coolers and other package equipment. No equipment manufactured by them contains aluminum, except one line of coolers built with self contained Copelamatic unit.

BUSH MANUFACTURING CO., THE, Hartford, Conn.—Manufacturers of heat transfer products, have never used aluminum or magnesium in any of their products.

CARRIER CORPORATION, Syracuse, N. Y.—All of their equipment has been manufactured without the use of aluminum, magnesium or zinc where it would come in contact with the refrigerant with one exception which is an evaporative condenser made for use with ammonia. The model numbers of these condensers containing aluminum are: 15K4-184; 15K4-174; 15K5-174; 9P2-224 and 9P3-224. These models were manufactured and sold for ammonia use only. They are obsolete models and the coils are not at present replaceable.

CERTIFIED PRODUCTS CO., (Liquidated) formerly of Toledo, Ohio—Sold under their name, complete self-contained air conditioning units equipped with hermetically sealed motor-compressor units charged with Freon-12 and provided with a capillary tube which contained aluminum. All these units are equipped with aluminum rotors in the compressor motor, which comes into direct contact with the refrigerant. They may be identified by the model numbers C-30-D, C-30-S, C-51, C-31, R-51, C-51-B. No replacement parts are available for these units.

COLDSPOT—(See Sunbeam Elec. & Mfg. Co.)

CONTINENTAL CORP.—(See Sanitary Refrigerator Co.)

COPELAND REFRIGERATION CORPORATION, Sidney, Ohio—Manufacturers of Copeland open and Copelametic sealed type condensing units. The open type does not contain aluminum. The Copelametic models contain aluminum and methyl chloride cannot be used in any Copelametic units. In making changeovers of the open type they recommend that oil levels in compressor be checked, since a certain portion of the oil is lost when Freon-12 refrigerant is discharged from the system.

CORDLEY & HAYES, New York, N. Y.—Manufacturers of water coolers. None of their equipment manufactured in the past contains aluminum, zinc or magnesium.

CREAMERY PACKAGE MFG. CO., THE, Chicago, Ill.—All their low pressure condensing units do not contain aluminum, zinc or magnesium alloys.

CROSLEY CORPORATION, THE, Cincinnati, Ohio—They state, "We have not used aluminum, zinc or magnesium or any of their alloys internally in any of our condensing units, which we have produced and sold."

CURTIS REFRIGERATING MACHINE DIVISION, St. Louis, Mo.—Manufacturers of compressors, condensing units and other refrigerating equipment. Their equipment does not contain aluminum, magnesium or free zinc.

CUTLER-HAMMER, INC., Milwaukee, Wis.—Makers of temperature and pressure

COPELAMETIC UNIT AND MOTOR-COMPRESSOR IDENTIFICATION

Standard Self Contained Units

Unit	H. P.	Motor-Compressor and Number	Part Model
2A-8-16 S	1/6	38-16 S	38100
2A-8-16 I	1/6	38-16 I	38114
2A-1-16 I	1/6	41-16 I	41000
2A-8-20 I	1/5	38-20 I	38115
2A-1-20 I	1/5	41-20 I	41100
2A-2-20 I	1/5	42-20 I	42108
2A-2-25 I	1/4	42-25 I	42105
2A-9-25 I	1/4	39-25 I	39000
2A-3-25 I	1/4	43-25 I	43107
2A-9-33 I	1/3	39-33 I	39100
2A-3-33 I	1/3	43-33 I	43101
2A-4-33 I	1/3	44-33 I	44101
2A-4-50 C	1/2	44-50 C	44100

Special Base Units

Condensing Unit	H. P.	Motor-Compressor and Number	Part Model
3B-8-16 S	1/6	38-16 S	38000
1D-1-16 I	1/6	41-16 I	41106
1W-8-20 I	1/5	38-20 I	38100
1B-8-30 I	1/5	38-20 I	38100
3B-1-20 I	1/5	41-20 I	41102
3B-2-25 I	1/4	42-25 I	42101
2D-2-25 I	1/4	42-25 I	42105
3B-9-33 I	1/3	39-33 I	39100
3A-4-33 I	1/3	44-33 I	44101
2T-4-50 C	1/2	44-50 C	44100

Standard Remote Units

Unit	H. P.	Motor-Compressor and Number	Part Model
1A-2-25 I	1/4	42-25 I	42106
1A-3-25 I	1/4	43-25 I	43110
1A-9-25 I	1/4	39-25 I	39000
1A-9-33 I	1/3	39-33 I	39100
1A-3-33 I	1/3	43-33 I	43109
1A-4-33 I	1/3	44-33 I	44105
1A-4-50 C	1/2	44-50 C-110 V.	44100
1A-4-50 C	1/2	44-50 C-220 V.	44115

Special Engineering Units

S. E. Number	H. P.	Motor-Compressor and Number	Part Model
SE 530	1/3	43-33 I	43100
SE 532	1/4	42-25 I	42101
SE 535	1/6	41-16 I	41000
SE 536	1/3	43-33 I	43109
SE 537	1/4	42-25 I	42111
SE 543	1/4	42-25 I	42101
SE 544	1/4	42-25 I	42105
SE 545	1/3	43-33 I	43101
SE 546	1/2	44-50 C	44114
SE 550	1/3	44-33 I	43114
SE 554	1/6	38-16 I	38114
SE 561	1/4	43-25 I	43107
SE 562	1/3	44-33 I	44101
SE 563	1/5	42-20 I	42108
SE 564	1/4	42-25 I	42101
SE 567	1/4	42-25 I	42101

controls, have not used aluminum in any of their products.

DETROIT LUBRICATOR CO., Detroit, Mich.—Makers of expansion valves, pressure controls and other refrigerant control devices, have never used aluminum in any of their products.

DICELER CORPORATION, THE, Gasport, N. Y.—No equipment manufactured by this company contains aluminum, zinc or magnesium; thus, according to The Diceler Corporation, "Diceler units can be charged with methyl chloride without affecting their construction."

DRAYER & HANSON, INC., Los Angeles, Calif.—They state, "All items manufactured by Drayer and Hanson may be used with methyl chloride refrigerant."

DUMORE ASSOCIATES—(See Taylor Freezer Corp.)

FAIRBANKS, MORSE & CO., Chicago, Ill., same as Servel, Inc. (See Servel.)

FRICK COMPANY, INC., Waynesboro, Penna.—The Frick F-R line of compressors from sizes 8¾"x6" to 15"x10" inclusive where capacity control is used has an aluminum gasket between the valve bonnet and the cylinder. Recent compressors have a copper gasket and those with aluminum are replaceable with copper. Early Eclipse compressors of the following models and serial numbers were equipped with aluminum valve plates. There are very few of these in service, however, and the aluminum valve plates are replaceable with steel:

3 Cylinder Model No. FW-325, serial numbers 45037 to 45066 inclusive; 45388 to 45417 inclusive; 44778 to 44782 inclusive; 44763 to 44777 inclusive; 44629 to 44643 inclusive; 44644 to 44648 inclusive.

4 Cylinder Model No. FW-440, serial numbers 45168 to 45197 inclusive; 44711 to 44725 inclusive and 44726 to 44730 inclusive.

6 Cylinder Model No. FW-650, serial numbers 45113 to 45142 inclusive; 44669 to 44688 inclusive and 44649 to 44658 inclusive.

Very few evaporator coils manufactured by Frick Company were made of aluminum, and inspection of the evaporator will readily show what material is used. Most coils were made of copper but some were made of aluminum tubing.

FRIEZ INSTRUMENT DIVISION, Bendix Aviation Corp., Baltimore, Md.—Manufacture no equipment used in refrigeration work which contains aluminum.

FRIGIDAIRE DIVISION, GENERAL MOTORS CORP., Dayton, Ohio, state, "At no time has Frigidaire used in any of its products or component parts any aluminum, magnesium or zinc, or their alloys, where such metals or alloys would come in contact with the refrigerant."

GALE PRODUCTS, Galesburg, Ill.—They state, "We have never manufactured any commercial condensing units that cannot be changed to methyl chloride. Household units, stating on the name plate that they are charged with Freon, cannot be changed because there is aluminum in all the evaporators, and in the case of hermetics, the motor rotor contains aluminum."

GENERAL ELECTRIC CO., Air Conditioning and Commercial Refrigeration Department, Bloomfield, N. J.—All General Electric service sealed type CT compressors have aluminum cast rotors and methyl chloride cannot be used. These compressors are used in types BT and RT water coolers and HL 22M2 storage cabinets. They may be identified by the model designation of BT and RT model water coolers and 19-HL-22M2 storage cabinets. No replacements are available for aluminum parts in these units. General Electric states, "There are no aluminum or magnesium alloys in any of our open type CM condensing units and in general it is permissible to use methyl chloride in them providing it is not in violation of any local or national codes. As pointed out above, methyl chloride must not be used in any of our type CT service sealed condensing units because they have aluminum cast rotors."

GENERAL ELECTRIC CO., Appliance and Merchandise Department, Bridgeport, Conn.—All G. E. sealed household refrigerating machines contain aluminum, magnesium or zinc. No replacements for aluminum parts are available because these are sealed units. They state, "We have used Freon-12 in a small percentage of our sealed household refrigerating machines, but it is not possible to use methyl chloride in any of them. Neither, of course, should any attempt be made to add methyl chloride to any of our other sealed machines which are charged with sulphur dioxide and in some cases methyl formate."

GENERAL REFRIGERATION CO.—(See Yates American Machine Co.)

GIBSON ELECTRIC REFRIGERATOR CORP., Greenville, Michigan—Makers of household refrigerating equipment. They state, "Because of the presence of

aluminum in some of our refrigerators and because of other factors affecting any such possibility of a change of refrigerant, we must emphatically recommend that no refrigerant other than Freon-12 be used in our domestic refrigerators designed for that refrigerant. This recommendation is based on tests made in our own laboratories."

HOWE ICE MACHINE CO., Chicago, Ill.—Have manufactured no equipment containing aluminum.

HUSSMANN-LIGONIER CO., St. Louis, Mo. (same as Allied Store Utilities Co.)—No products manufactured by them at any time contained aluminum.

INTERNATIONAL HARVESTER CO., Inc., Chicago, Ill.—No equipment manufactured by them contains aluminum, zinc or magnesium internally where it may come in contact with the refrigerant.

JEWETT REFRIGERATOR CO., INC., Buffalo, N. Y.—Manufacture sealed units which contain aluminum; all Model 88 domestic refrigerators and Models 4 and 6 low temperature Arctictrunk contain aluminum. No replacements for aluminum parts are available.

KAUFFMAN AIR CONDITIONING CORP., St. Louis, Mo.—All equipment is made of copper, and aluminum is not used in any part of it.

KOLD-HOLD MANUFACTURING CO., Lansing, Michigan—Have never used aluminum fittings or parts on any of the units constructed by them.

KRAMER TRENTON CO., Trenton, N. J.—Makers of coils, radiators and devices for cooling and heating state, "All the heat transfer devices we make are either of steel or copper with no other metals used in their construction."

LIPMAN—(See Yates American Machine Co.)

LYNCH MFG. CORP., Defiance, Ohio, formerly Modern Equipment Corp.—No aluminum has ever been used in the condensing units manufactured by Lynch Manufacturing Corp. or marketed under the name of "Par."

MAYFLOWER PRODUCTS, INC., Richmond, Ind.—Manufacturers of condensing units state, "At one time an aluminum oil inspection plug gasket was used on our compressors which was very easy to ascertain by inspection of the oil plug." A new inspection plug gasket made of copper asbestos can be furnished to replace the aluminum gasket. Order by using the model number of the compressor.

McCORD RADIATOR & MANUFACTURING CO., Detroit, Mich.—Makers of condensers and other refrigeration coils, have never used aluminum or magnesium in any of their refrigeration products.

McCRAY REFRIGERATOR CO., Kendallville, Ind.—Manufacturers of refrigerators for all purposes. Have sold under their name equipment containing a sealed type condensing unit which contains aluminum. This equipment can be identified by the following description and model numbers: Model FO5M double duty display case equipped with semi-hermetic unit; Model GH14FSI; Model FT5M double duty display case equipped with semi-hermetic unit; Model GH14FSI; Model VK6M double duty veg. display case equipped with semi-hermetic unit; Model G413FSI. No replacements are available which would eliminate the aluminum in these machines.

MERCHANT & EVANS CO., Philadelphia, Pa.—Manufacturers of electric refrigeration equipment, have manufactured a sealed type condensing unit which contains aluminum. None of their open type contain aluminum and, therefore, methyl chloride can be used without harmful effect on the metals. Mr. A. Banyai, Chief Engineer of the company writes, "All our open type units can be charged with methyl. For the last three years, we sold hermetically sealed units in sizes ¼, ⅓ and ½ hp. They are designed for use with Freon-12 refrigerant only. Adding any other refrigerant will void the warranty on these units, because methyl chloride will attack the winding on the stators and the cast aluminum rotors."

MILLS INDUSTRIES, INC. (formerly Mills Novelty Co.), Chicago, Ill.—Manufacturers of condensing units and specialty equipment, never manufactured any refrigerating equipment containing aluminum.

MINNEAPOLIS-HONEYWELL REGULATOR CO., Minneapolis, Minn.—Manufacturers of control systems, including thermostatic and pressure controls, never used aluminum or magnesium in the manufacture of any of their refrigeration products.

NASH-KELVINATOR CORPORATION, Detroit, Mich.—Manufacturers of commercial and domestic refrigerating equipment state the following: "Any open type condensing unit manufactured by Kelvinator or Leonard is all right for methyl chloride so far as the material within the condensing unit is concerned. Under no circumstances must any sealed unit ever be opened in the

field nor may methyl chloride or any other refrigerant, other than Freon-12, be used. Our sealed units are designed for Freon-12 and it is absolutely ruinous to use anything else. Besides, if any one opened up our sealed unit in the field the warranty is automatically off, or if it is recharged in the field our warranty is off.

"A great many of our units are connected to various types of coils, water coolers, etc. We have no knowledge of what these are except in a general way, therefore, can give no information on any of this type of product, other than our condensing units.

"Ice cream cabinets manufactured by us are satisfactory when methyl chloride is used, as there is nothing in the lowside that will be effected by the use of methyl chloride. We do not manufacture coils; therefore, there is no information that we can give you on that particular part."

O'KEEFE & MERRITT CO., Los Angeles, Calif.—Manufacturers of condensing units and household refrigeration, produce sealed units which contain aluminum. These units which contain aluminum can be identified only by their year and model numbers which are the following: 1939 Models 639, 739, 4539 and 9639; 1940 Models 2540, 4540, 640, 9640, 6640 and 840; 1941 Models 2540, 4540, 640, 9640, 6640 and 840. Parts cannot be obtained to replace the aluminum in these systems.

PAR—(See Lynch Manufacturing Corp.)

PENN ELECTRIC SWITCH CO., Goshen, Ind.—Manufacturers of automatic switches and controls. Have never used aluminum or magnesium in any of their products where it would come in contact with the refrigerant.

RANCO, INC., Columbus, Ohio—Makers of thermostatic and pressure controls, have never used aluminum, zinc or magnesium in any of their products where it will come in contact with the refrigerant.

REFRIGERATING SPECIALTIES CO., Chicago, Ill.—Manufacturers of expansion valves, two-temperature valves, pressure reducing valves, condensing water regulators and other control devices. As described by the manufacturer, the only controls containing aluminum are some types of solenoid valves. They can be identified as the following: type S7 1¼" and 1⅝" port size solenoid valves. The types S4, S5, S6 and S8 solenoid valves in all port sizes do not contain aluminum. Type S7, up to and including the one-inch port size also does not contain aluminum.

REMPE CO., Chicago, Ill.—Manufacturers of fin and pipe coils, none of which contain aluminum. All their products have been manufactured of either steel or copper and are satisfactory for use with any of the low pressure refrigerants.

SANITARY REFRIGERATOR CO., Fond du Lac, Wis., and Continental Corp., a subsidiary of Sanitary but now inactive.—Mr. Henry B. Miller, Secretary-Treasurer of the company writes:

"The Continental Corporation has not been active for some years, but since it became inactive the electric refrigerated products of this company have been sold by the Sanitary Refrigerator Company to the trade. The Continental brand name was generally used on our freezer chest production before the war.

"Generally speaking, it would be best for the service man to write us direct before converting any Freon-12 system in the field to methyl chloride. In communicating with us the service man should give us the name and address of the user of the locker, the model number of the locker, and if possible the unit serial number, the cabinet serial number and the compressor serial number. If given such information, we will immediately check our detail specification sheet for the particular locker involved and rush the information to the service man.

"During the pre-war period we made some small frozen storage lockers. Some of these were about two cu. ft. capacity and some were about three cu. ft. capacity. These were equipped with Chieftain Units manufactured by the Tecumseh Products Co. of Tecumseh, Michigan, and supplied with Freon-12 refrigerant. These cannot be converted to methyl chloride refrigerant because of the aluminum parts in the sealed compressor unit. We also made some models in the larger locker plants, illustrated on the enclosed circular No. 9441, which were equipped with extruded aluminum freezer plates. These can usually be identified by examination, test with a file, and so forth. The larger model lockers that were equipped with conventional condensing units can be converted to methyl chloride refrigerant providing the system doesn't contain aluminum freezer plates and providing the expansion valves can be exchanged to methyl type expansion valves.

SERVEL, INC., Evansville, Ind.—Makers of electrical refrigeration and air conditioning equipment. Servel manufactured one type of sealed unit known as the Supermetic,

which contains aluminum. This is the only type of equipment sold by Servel that contains any aluminum, magnesium or zinc, and identification is, therefore, simple in that every Supermetic unit contains aluminum. Model numbers of these units are: LCC-20F, LDD-25F, MCC-25F, LEE-33F, MDD-33F and MEE-50F. These units were designed and built for Freon-12 only. No parts of other metals are available to replace aluminum parts. All other equipment manufactured by Servel contains no aluminum.

STEWART-WARNER CORPORATION, Chicago, Ill.—Manufacturers of household refrigeration manufactured a sealed type unit and a line of evaporator coils which contain aluminum. They are identified by the type of refrigerant used. All models charged with Freon-12 refrigerant contain aluminum. Identification can be made by referring to the name or serial number plate attached to the base of each cabinet on which it states the kind of refrigerant used. No replacement parts are available for the aluminum parts.

SUNBEAM ELECTRIC & MFG. CO., Evansville, Ind.—Manufacturers of condensing units, one of which is sold under the name of Coldspot. All units manufactured by them contain aluminum parts and no replacements are available for these parts.

TAYLOR FREEZER CORP., now Dumore Associates, Beloit, Wis.—Have not manufactured any products containing aluminum.

TECUMSEH PRODUCTS CO., Tecumseh, Mich.—Makers of condensing units. All sealed type units manufactured by Tecumseh contain aluminum. None of the open type units use aluminum in their construction. The sealed type units containing aluminum are listed under the following model numbers: H18C-1L, H16C-1L, H18S-1L, H15C-1L, H14C-2L, H14C-2H, S88L, S88L5, S889L, S889H, S68LS, S64LS, 568L, S64L, S54L, S54H, S48L, S4811L, S84L, S3411L, S38H, S3811H, C24H, C2411H, C54L, C48L, C34L, C68L. No replacement parts are available to replace the aluminum.

TEMPRITE PRODUCTS CORP., Detroit, Mich.—No equipment manufactured by Temprite contains aluminum.

UNIVERSAL COOLER CORP., Marion, Ohio.—Manufacturers of condensing units and household refrigerating equipment. All sealed units manufactured by the company contain aluminum. None of the open type units contain aluminum. In addition, they manufactured an evaporator coil known as the domestic 39-40, a line of domestic refrigerators, beverage coolers and some open type units using a capillary tube liquid line. Some domestic and beverage coolers employed an extruded aluminum lowside. In general, all equipment containing aluminum can be identified by the fact that all open type systems having aluminum lowsides are marked with a warning tag that methyl chloride must not be used. All hermetic units containing aluminum have the prefix HC or SHC in the model number. No replacement parts are available.

VIKING REFRIGERATORS, INC., Kansas City, Mo.—No equipment manufactured by them contains aluminum.

VOGT MACHINE CO., HENRY, Louisville, Ky.—They state, "We manufacture Freon vessels such as condensers and evaporators but have never used aluminum, zinc or magnesium in their construction."

WAUKESHA MOTOR CO., Waukesha, Wis.—They have not manufactured any equipment containing aluminum.

WEBER SHOWCASE & FIXTURE CO., INC., Los Angeles, Calif.—They have never manufactured any equipment containing aluminum; however, some sealed units included in their equipment cannot be used with methyl chloride.

WESTINGHOUSE ELECTRIC & MFG. CO., Springfield, Mass.—Makers of commercial and domestic refrigerating equipment. All sealed units manufactured by Westinghouse contain aluminum; also, all other equipment manufactured by Westinghouse contains either aluminum, zinc or magnesium. No parts are available for replacement of those containing aluminum and no change of refrigerant can be made.

WILLIAMS OIL-O-MATIC HEATING CORP., Bloomington, Ill.—Makers of condensing units. None of their products have ever contained aluminum, magnesium or zinc.

YATES AMERICAN MACHINE CO., General Refrigeration Division, Beloit, Wis. (Lipman)—None of the equipment manufactured by this company for use with methyl chloride or Freon-12 ever contained aluminum. Some ammonia lowsides, however, were connected with aluminum tubing; thus, where a change from ammonia to methyl may be contemplated, a thorough inspection of the equipment must be made to determine whether aluminum is used in the system.

(Continued on page 40)

Service Pointers

Practical Service Men Tell How They Meet New Repair and Service Problems

UNDER this department a number of practical service men show a commendable cooperative spirit in passing on to others information on special repair and service problems that may be of much value in these trying times of material scarcity and shortage of competent help. We believe if more readers would send similar contributions, making THE REFRIGERATION SERVICE ENGINEER a medium for the exchange of information on service, much benefit would accrue to all. Similar contributions are solicited from all readers.

SERVICING WHINING SEALS

By Norman Lymburner

YOUR magazine has taught me so many tricks by the boys working in the field, that I feel I would like to offer a product of a little experimenting I have done in connection with whining seals.

Most seals I have been able to obtain of late have been of the type which carry the nose an inch or more away from the main bearing, for example "Rotary." To lubricate this, ordinarily it requires a considerably higher level of oil in the case, because the usual flow from the top oil feed to the seal nose will not touch the nose in new position, "extended out on the shaft."

I have found that by plugging the lower return oil drain with a piece of solder tapped in that there immediately builds up a pool of lubricant which will keep the seal in a constant bath.

On this set-up, I presume any excess oil in the seal cavity must work back via the crankshaft bearing. As soon as cavity fills, all other oil must by-pass the top drain until the level in the seal cavity lowers.

Anyway, it works and that is the important thing. The squeals stop and up to the present I have had no further trouble with seal leak or squeal, and no oil logging in tanks or coils, as I use just enough to assure a good splash and there seems to be none leaving the case.

I am offering this information with the thought that someone may be able to benefit from my experience.

INSTRUCTIONS ON AUDIFFREN CONDENSING UNIT

By Harold S. Hanson

I WAS interested in Question 586 in the February issue which refers to the Audiffren condensing unit. The United States Navy, Bureau of Engineering has issued a pamphlet entitled "Instructions for the Operation and Maintenance of Refrigerating Plants." It is obtainable from the Superintendent of Documents, Government Printing Office, for 30 cents. It is revised as of 1940.

Section 4 is devoted to the Audiffren system, a rather complete description of it and its operation. The instructions are to return the unit to a Navy Yard for repair, so that it is like other hermetic units—some job to repair. Possibly the Army has some base to send the unit to and from which a replacement can be obtained.

A few of the details are (an amplification of your answer): The No. 4 machine rotates at 190 r.p.m.; never allow condenser water temperature to exceed 90° F.; keep condenser drum (ball nearest pulley) free from scale or incrustations; designed for continuous running if necessary; high-side float; has automatic unloader to reduce possibility of "turn-over" if pressure should build up.

In starting after prolonged shutdown, the procedure is to make sure bearings are lubricated, condensing water is flowing and then to lower the brine level below the evaporator; start up for 20 seconds and stop for 20 seconds for about a dozen cycles, then leave on but scrape off the frost to keep the evaporator temperature high enough so the oil

won't congeal, or stop machine occasionally to defrost. After a long running period, do not stop and immediately restart machine; wait for pressuures to equalize in order to prevent "turn-over."

After evaporator has been cooled down for some time and with machine running, slowly raise level of brine to nearly cover evaporator, but do not raise level so fast that the temperature of the brine immediately surrounding evaporator exceeds 55° F. Do not let the brine run too low in tank; it should nearly cover evaporator. A salt brine is used.

If the machine fails to cool, check the speed, direction of rotation (clockwise facing pulley), check to see if evaporator will frost with brine removed. Loss of capacity may be due to unloader being open. Stop for five minutes and restart.

"Turn-over" is usually due to high pressures resulting from lack of cooling water or not cooling water. "Turn-over" may damage unit by bending shaft or springing internal parts. If the "turn-over" has not lasted too long, a careful restarting may be all that is necessary to get it back into operation.

There is a charging connection in the end of the shaft for the service work but the pamphlet warns against opening it.

REPAIRMEN FURTHER LIMITED ON USE OF MATERIALS

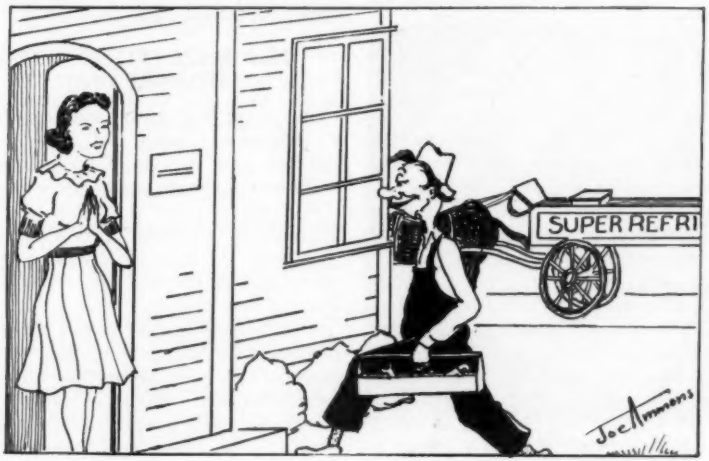
REPAIRMEN may use only up to $25 worth of material purchased under procedures contained in Controlled Materials Plan Regulation No. 9A for installing any unit of cooking, plumbing, heating or used air-conditioning or refrigeration equipment, the Controlled Materials Plan Division of the War Production Board announced February 26.

However, if a new air-conditioning or refrigeration system has been authorized under the provisions of Limitation Order L-38 and authorization to construct has been granted under the terms of construction Order L-41, a repairman may use up to $250 worth of material purchased under CMP Regulation No. 9A to install the new system.

These general rules, which are contained in Direction No. 2 to CMP Regulation No. 9A, do not increase the over-all amounts of materials that repairmen are permitted to purchase under the CMP Regulation No. 9A procedure.

Previously repairmen who desired to make these types of installations were required to file specific applications with WPB for the materials needed to make each such installation.

Oh goodie! You're the new victory service man! And to think I got you after waiting only seventeen days.



COMMERCIAL

INCREASE BUSINESS BY DOING A MORE EFFECTIVE JOB OF SELLING *Selling*

Demand for Home Freezer Units Shows Promise of Huge Post-War Market

AN increasing demand for home freezer units spreading throughout the country for several months has led some enthusiasts to predict that these cabinets may become as common after the war as modern ice and mechanical refrigerators are today. Calls for such equipment long ago exhausted most of the current stocks and pre-war models and many people, determined to have some sort of freezer for their own use, turned to utilization of ice cream cabinets and other makeshifts.

These cabinets are not accepted as satisfactory and, as soon as conditions will permit their manufacture, it is expected that a vast new market will be opened up for sale of modern home freezer storage cabinets. Since their primary field will be among the better farmers, particularly those acquainted with locker service, there will be an opportunity for sales and service concerns serving rural communities to get into this business.

Locker operators, particularly, are very much interested in the demand for these cabinets because they are so closely related to their own business. While they may be competitive in some cases, it is thought that they will not take the place of locker service but that they will serve rather as an adjunct to be used chiefly for auxiliary food freezing and storage. A number of locker operators have expressed the desire to make these units available to their patrons. However, they are not equipped by training or facilities to do a selling or service job and here is where the local sales and service concerns fit into the picture.

To give service men and others an idea as to what will be available in these home freezers after the war, the following information has been compiled.

DEEPFREEZE FROZEN FOOD STORAGE UNIT

One of the first concerns to manufacture a refrigerated cabinet exclusively for the freezing and storage of foods was the Deepfreeze Division of the Motor Products Corp., whose plant is located at North Chicago, Ill. This unit, an original design, with the freezing and storage cabinets made in the form of a cylinder, is made in two sizes.

The larger consists of two cylindrical cabinets with refrigerating unit between, powered by a ⅓ hp. compressor unit. The Deepfreeze cold cylinder is both the cooling element and storage box. Instead of freezing coils, Freon refrigerant circulates

Motor Products Corp., North Chicago, Ill.

within the double wall of the cylinders, the refrigerant surrounding the entire storage space. All food is within nine inches of the primary freezing surface, the area of which is 48 sq. ft.

The smaller model consists of a single freezing and storage cylinder with the refrigerating unit at one side. It is powered by a ¼ hp. compressor unit. The storage cylinder is the same size as in the larger model, with 24 sq. ft. of freezing surface.

Because of its unique design, the makers of this unit claim low first cost and low operating cost. The primary freezing surface is so large in proportion to the area to be cooled that the compressor is able to operate on back pressure instead of the customary vacuum, thus reducing power consumption practically one half. The Deepfreeze cold cylinder is both the cooling element and storage box.

Specifications

Specifications of the double unit are as follows:

Outside: 37 in. high, 65 in. long, 26½ in wide.

Food cylinders: Two cylinders, each 18 in. diam., 30 in deep, inside storage space.

Shipping weight: 685 lbs.

Freezing unit: Double-wall cold cylinder forming walls of food compartment. Inside wall 12 gauge and outer wall 14 gauge.

Motor: ⅓ hp. capacitor-type, 110-120 volt A. C. standard make, rubber mounted.

Compressor: New silent-valve head, two-cylinder, piston type, rubber mounted.

Refrigerant: Freon-12.

Insulation: Four inches.

Temperature control: Adjustable, zero deg. Fahr. or lower.

Expansion valve: Gas filled, no need to throttle when starting at any time.

Dehydrator: Four-inch unit, charged with silica gel.

Body: Automobile fender steel.

Finish: Baked high-lustre white enamel.

Trim: Stainless steel.

Specifications of the single unit are the same as the above except as follows:

Outside: 37 in. high, 37 in. long, 26½ in. wide.

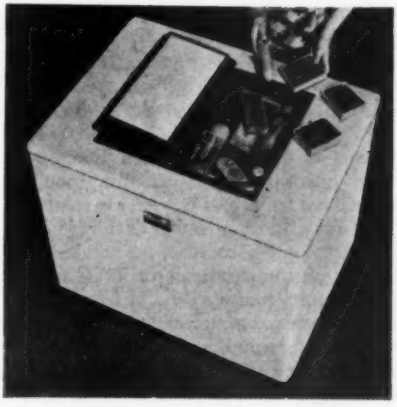
Food Cylinder: One cylinder, 18 in. diam., 30 in. deep, inside storage space.

Shipping weight: 400 lbs.

Motor: ¼ hp.

PAK-A-WAY STORAGE LOCKER

The Pak-a-way portable home storage locker is made by Schaefer, Inc., of Minneapolis, Minn. This company has no models on hand because of Government rulings, but it is definitely planned to resume production when materials are available. The following description of the pre-war home freezer cabinets made by this company is not an authentic picture



Shafer, Inc., Minneapolis, Minn.

since post-war models are being designed, with improvements and changes. However, it will give the trade a basic idea of what may be available from this company.

These units were made in a variety of sizes and types to meet many requirements in the home, on the farm, in food stores, restaurants, etc. They are of rust-proofed welded steel construction and finished in white Dulux, with top opening.

Dimensions

Model 3 has the following dimensions: Exterior: 37 x 21½ x 36½ in. high; interior, 26¼ x 12 x 16¼ in. deep; shipping weight 295 lbs.

Model 6 has the following dimensions: Exterior: 30½ x 29½ x 36½ in.; interior, 31 x 20¾ x 16¼ in.; shipping weight, 450 lbs.

Model 13 has 13.2 cu. ft. of storage space and comes equipped with wire dividers and trays. Exterior dimensions are 72½ in. long, 30½ in. wide, 32 in. high; shipping weight, 645 lbs.

Model 2010 is a two-temperature storage cabinet with self-contained hermetic compressor. The low temperature compartment is 6.6 cu. ft. for storing frozen foods, ice cream, etc., accessible through hard molded rubber top lids. The high temperature compartment has 3.83 cu. ft. storage capacity for storing dairy products and bottled goods. Exterior dimensions are 55¼ x 30½ x 32 in.; shipping weight, 500 lbs.

Model 20, a large capacity storage and quick freezer locker, has storage capacity of 20 cu. ft. Its dimensions are 119 in. long, 29½ in. wide, and 32 in. high. This cabinet is designed to quick freeze and store quantities of meats, fish, poultry, vegetables, fruits and berries. It combines both quick freezing and zero storage compartments in one compact cabinet designed so that all compartments maintain a zero temperature, running on a ⅓ hp. hermetically sealed compressor. When quick freezing is desired, a switch brings a second compressor into operation, lowering the temperature in the freezer compartment to minus 20° F.

ARCTIC TRUNK CABINET

The Arctic Trunk cabinet, made by the Jewett Refrigerator Co., Inc., Buffalo, N. Y., is made in two sizes. These also are pre-war models, although the company has very definite plans as to post-war products. Operating at below zero temperature, these models keep commercial and home frozen foods indefinitely, according to the circular issued by the company. They are made of steel, completely insulated and with top lid, with counter-balance to make lifting easy.

Jewett Refrigerator Co., Buffalo, N. Y.

Specifications are as follows: Exterior finish, blue crackle on heavy gauge "paint grip" steel. Interior finish, rolled copper hot tinned. Insulation, four inches sealed with hydrolene. Temperatures between minus 15° F. and 5° F. are maintained, according to the setting of the control.

Model 4-A has the following dimensions: exterior, 40½ in. high, 32¼ in. long, 22¼ in. wide; interior, 19½ in. high, 25 in. long, 14 in. wide; capacity, 3 cu. ft. net, 100 lbs. of vegetables and fruits, 160 lbs. of meat.

Dimensions of Model 6-A are as follows: exterior, 40½ in. high, 43 in. long, 25⅞ in. wide; interior, 17½ in. high, 34 in. long, 17⅞ in. wide; capacity, 6 cu. ft. net, 200 lbs. vegetables and fruits, 240 lbs. of meat. This model also has removable

divider as optional equipment, making possible more orderly storage of small packages.

Both models are equipped with a sealed refrigerating unit, Model 4-A with a single cylinder 1/6 hp. motor, and Model 6-A with a twin cylinder ¼ hp. motor.

THE QUILLEN ALL-PURPOSE FREEZER

The Quillen all-purpose freezer is made by the Quillen Brothers Refrigerator Co., Indianapolis, Ind. Although not on the market at present, it is the intention of this company, as soon as material is available, to start manufacturing two sizes of cabinets, a 15 cu. ft. and a 25 cu. ft. model.

Quillen Brothers Refrigerator Co. Indianapolis, Ind.

These cabinets are designed for freezing meats, poultry, fish and game, vegetables and fruit. There are two fast-freezing shelves with a temperature range to minus 30° F. A temperature of below zero is maintained throughout the cabinet under normal conditions.

The 15 cu. ft. model will accommodate approximately 1,000 lbs. of meat. These models have been designed and built especially for home use on the farm or in town, but also will be available for hotels, camps, estates, stores and institutions, wherever there is a need for storing frozen food.

Cabinets are 76 in. long, including refrigeration unit; 38 in. high; 30 in. wide; insulated with four inches of standard insulation in walls and five inches on the bottom. The compressor is equipped with a standard ⅓ hp. motor.

(To be continued)

Priority Purchase Plan Started by Furniture Store

WITHOUT paying any money down or being obligated in any way, customers may register for the purchase of electrical appliances after the war under a "Priority Purchase Plan" instituted by R. B. Broyles Furniture Company, leading furniture store of Birmingham, Ala., which has long been active in the sale of home and electric appliances.

"This is merely a check, enabling us to roughly gauge the quantity we will need to order from the manufacturers, and it is your assurance that you will be among the first to obtain the wanted items as soon as they arrive," said an announcement of the plan. "By registering in this plan, you are reserving the article you want, and it will be kept for you, for a reasonable length of time after you are notified that it has come in."

"This does not mean you buying anything unseen," said a further announcement of the plan in a two-thirds of a page newspaper advertisement. "You will see the merchandise in our store and make the selection from actual stock, with every right of refusal if you are not satisfied, without having paid one cent. If you care to specify further as to size or type of the item you wish to reserve, we will be glad for you to come in our store and discuss the matter more thoroughly with us."

The certificate which the customer signs has the following appliances listed: electric refrigerator, electric or gas range, electric ironer, record player, electric vacuum sweeper, electric washer and radio. There is space where the customer may designate any other wanted appliances.

S S S

A soldier in the South Pacific received word of serious trouble at home. He went to the American Red Cross representative assigned to his unit. The latter, in cooperation with the man's home chapter, worked out a satisfactory solution of the family's difficulties. This is one of many Red Cross services to soldiers and sailors and their families, made possible by contributions to the Red Cross War Fund.

The Question Box

Readers are invited to send their problems pertaining to the servicing of household refrigerators and small commercial refrigerating equipment to "The Question Box."

DIRECT EXPANSION VS. BRINE MILK COOLING

QUESTION 589: Would you be kind enough to give me all available information that you may have on direct expansion milk coolers? Could you also give me the advantages and disadvantages of this type of milk cooling as against using brine for the cooling agent and as against using an alcohol-water mixture as a cooling agent?

I have a problem of converting a system using an alcohol-water mixture to a direct expansion system using an air cooled compressor and would like to know whether this conversion would be profitable.

What treatment would be necessary for cleaning the alcohol-water mixture out of the tubes of the evaporator?

ANSWER: To begin with, the direct type of cooling system would require a condensing unit more than twice the size of one employing a brine cooling system. This is because your condensing unit with the direct type system must carry the entire cooling load within a period of perhaps an hour, or whatever the time required in running the milk through.

As against this, the brine cooling system usually employs a large brine storage tank in which temperature can be stored and absorbed by the condensing unit over a period of sixteen hours. The heat load may be imparted to this storage of brine over a period of an hour, while the milk is being run through, but the condensing unit has the balance of the day in order to transfer that heat to the atmosphere.

The type of brine you use is not important, except from the standpoint of odors which may contaminate the milk. Alcohol-water mixtures would have to be thoroughly sealed within a closed system in order that the alcohol would not evaporate and to prevent contamination of the milk through alcohol odors.

Calcium brine systems do not require sealing, and they very often employ open tanks for the storage of the brine. It would not be possible, in my opinion, to convert a system now using brine to a direct expansion system, unless you are able to add considerably more condensing capacity. Of course, I am taking for granted in all these statements that the evaporator used for cooling the milk is a standard Aerator.

GENERAL ELECTRIC ERRATIC

QUESTION 590: I have your letter in regard to my former troubles. I found after further trying, that the valve was erratic in holding and that it would pump and then it would not. I could hardly pump the coils out with it. I also found that the power element in the temperature control expansion valve, although never having been used, had lost its charge. Many thanks for your advice and help.

I would like to ask your advice on another symptom on a G.E. sealed unit; in fact, I have just received a service call on another one, and from all reports, they have the same trouble. The G.E. units seem to run all right, it freezes all right from time to time, and then it seems to defrost the evaporator between cycles; then it runs again until it frosts over. I tried a new control on it, but it seems to act the same way. At night if the evaporator defrosts between cycles of operation, it may just start up and run and run. I have been told that this has happened so that the water in the drip pan from the defrosting would freeze up and crack the glass drip pans. What do you think is the trouble? It's not the control, as it is a new one from the factory, and the unit is sealed with a high side float control.

ANSWER: The fact that the G. E. unit freezes satisfactorily when it does operate indicates there is nothing wrong with the refrigerating system, but the fact that it is erratic in its cut-off and cut-in periods, indicates your trouble is in the electrical system.

Such troubles could be in one of several places, but it is usually caused by the thermostatic control, or more specifically, by the improper breaking of the contact points. Perhaps these contacts are not opening properly so as to break the contact, or it

may be that the contacts are sticking, causing the contacts to remain closed, even though the control itself is endeavoring to open them.

Another possibility is a short between the wires leading to the thermostat caused by moisture in the insulation between the two wires. The moisture, at times, may bridge the space between the two wires shorting out the control, while at other times, there may not be sufficient moisture to cause this trouble. I could perhaps go on with a number of other possibilities, all of which would be just guessing. The fact is that the trouble is in the electrical system, and it will be necessary to test it all the way through in order to find the trouble.

TROUBLE CORRECTS ITSELF

QUESTION 591: I was called upon to service the following domestic refrigerator: Westinghouse model BP941, style 992552, serial WB262819, Unit model L-8. The complaint was that the unit wouldn't start, but would make a peculiar noise for a few seconds and then would be quiet. The cold control was turned to "off" when I arrived at the scene of action, and when I turned it to the "on" position, that is just what did happen.

Wanting to make sure whether it was the relay box or the motor that was at fault, I disconnected the three motor leads from the cold control and hooked them on to my hermetic service analyzer. The compressor still wouldn't run, so I assumed that the fault was in the compressor. So that there wouldn't be a few loose wires hanging around, I connected the motor leads to their proper places on the cold control. Then, after plugging the cord in and turning the cold control on (just to see if the reaction was the same as before I worked on the unit), the unit took off and ran beautifully.

I am wondering if you know of anybody having a similar experience on this type of unit; if so, what could the answer be? I changed nothing in the adjustments of the cold control and was very careful to get the wires back on the terminal posts they came off of. I went back later to see if the unit was O.K. and it was. This has me puzzled. Do you have any suggestions?

ANSWER: Any explanation I can make on the actions of the Westinghouse refrigerator would be purely a guess. It would seem, though, that the trouble could have been due to corroded terminals, or to a poor connection to the motor. In your process of removing these connections and again tightening them, you may have improved the contact so that the unit operated satisfactorily. Another possibility, too, is that dirt and foreign matter created an electrical bridge between two of the terminals which would short out one winding of the motor, and here again in your work on the unit, this bridge may have been removed.

MULTIPLE HOOK-UP OFF BALANCE

QUESTION 592: I would appreciate your suggestions on this installation. The three individual TEV's would freeze up in short order. I added 8 oz. of Thawzone, but this did not help any. I put in a recharged dehydrator, opened the valves wide and let the job run all night. The room temperature was down to 50°, which would be all right, as the chocolate trough would be heated in the morning (four of them drawing 220 watts per hour) and ten girls would be working in this room. There are two lights burning at 100 watts each. The load was estimated at 30,000 BTU's per hour. The back pressure is 35 lbs. with a single suction line of $\frac{5}{8}$" tubing. I have not as yet added the other $\frac{5}{8}$" line at X on the drawing as I have been having too much difficulty with the valves freezing. Would you please let me know how a three blower unit generally operates? The second coil would frost up nicely, while the last one would be starved. The order of efficiency would change from one to another at intervals. Would a single 3-ton valve be better on this hook-up?

ANSWER: It would be my opinion that the only way to get proper operation from the three air conditioning evaporators you have described is to install three separate suction and liquid lines from each evaporator, which would be brought into a header at some point nearer the machine. A larger suction line from the header to the machine would be required which would have the capacity of the combined load of all the evaporators.

The manner in which this system is installed at the present time would cause an unbalanced condition in these evaporators because at times, the pressure will be higher in one evaporator than in another. This is due to the suction lines being loaded beyond their capacity, when more than one evaporator is calling for refrigeration. Adding the other suction line, as you propose, will help, but it still does not provide assurance that the other two evaporators will function properly.

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Service Engineer

Service Engineer

WITH many of his co-workers in the armed forces, the refrigeration service engineer is working harder than ever before, willingly taking on the great task of keeping present refrigeration in operation.

▸ He's one of the "unsung heroes" of the home front. His experience and knowledge of every type of refrigeration and air conditioning installation provide a firm foundation for tomorrow's progress in the industry.

▸ If the *dependability* always built into A-P Refrigerant Valves has made his task easier, we, at A-P, are grateful. And we promise continued cooperation in the future.

WE SUPPLY: Thermostatic Expansion — Solenoid — Constant Suction Pressure — Water Regulating Valves — "Trap-Dri" System Protectors—Water Solenoids—Cooling Thermostats.

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DEPENDABLE
REFRIGERANT VALVES

OFF CYCLE FLOODING

QUESTION 593: I have a low temperature box which is giving considerable trouble due to the fact that raw liquid is being drawn into the compressor body. The job operates at approximately zero with six Peerless low temperature coils manually defrosted. It is a methyl chloride job using two 5 hp. Par compressors. There is no heat exchanger on the job and we are unable to obtain one. The suction line coming from the last coil runs through this low temperature box for approximately 30 ft., gas condensing in this line coming back to the compressor. I would appreciate as many suggestions as you can offer to relieve this situation.

ANSWER: It is rather difficult to answer a question of this nature from the information given in a letter. There are always so many more things one would like to know about the installation before offering any suggestions. Therefore, I am going to state just a lot of points that come to mind in connection with this installation which may help you solve the problem rather than try to offer a suggested remedy.

The first thing that comes to my mind is —are the thermostatic valves holding properly? If this liquid refrigerant returns to the compressor only for a short period after the machine starts on its "on" cycle, and then clears itself so that no liquid is returning during the balance of the "on" cycle, it would indicate that you are getting what is known as an "off" cycle flooding, and this, in turn, could very likely be due to the manner in which the expansion valves are installed, or to faulty operation of the valve. In other words, for some reason, the valves permit liquid refrigerant to pass through them during the "off" cycle of the system. This, in turn, floods the coil with liquid refrigerant which is drawn into the suction line when the machine starts. Slugging, of course, will result, but will clear within a few minutes and the machine will function properly for the balance of the "on" period.

The location of the thermo. bulb might also be a cause of this "off" cycle flooding, if the bulb is located too near the point where the suction line leaves the cabinet. Heat conducted through the tubing to the bulb during the "off" cycle would cause the valve to open up. It may also be caused by the thermo. bulb being located too far away from the coil. Moving the bulb to a location nearer the coil may close off the valve sooner during the operating period, and in this way prevent liquid returning to the compressor.

Another thought which comes to mind is whether the returning liquid is pure refrigerant, or whether it is mainly oil carrying a little refrigerant with it. In other words, have you definitely established the fact that it is liquid refrigerant, or are the compressors pumping oil in large enough quantities to cause an apparent liquid return through the suction line? A remedy for this, of course, would be an oil separator.

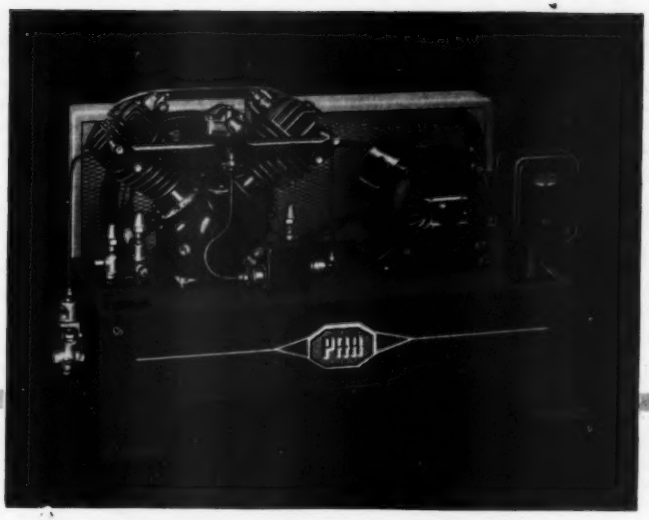
There are only two things I could suggest as a substitute for heat exchanger, the first of which you have probably considered already, and that is soldering or fastening the liquid and suction lines together—thus, forming a form of heat exchanger, and the other is to install an accumulator between the location of the thermo. bulb and the compressor which would trap any liquid returning through the suction line, and give it an opportunity of drying out before reaching the compressor.

This trap would have to be installed outside the cabinet so that sufficient heat could be picked up to dry out the gas. This would be a wasteful method, since any refrigerant being evaporated at that point would be a loss in efficiency in the system.

CONVERTING ICE CREAM CABINET INTO FREEZER

QUESTION 594: Would you kindly advise me whether it is best to try to make a sharp freezer out of a brine ice cream cabinet? We have one of the Grand Rapids cabinets called the Zer-O-Vis which has four holes for ice cream and a very small show case affair all in one unit. We would like to make a frozen food cabinet out of it, both in the show case part and cream part. Is it possible to do this with the present brine system that it has or would one have to put cold plates in and take out the brine tanks? Also, due to Freon being so hard to get, could we use methyl chloride with good success? About what size compressor is best to use? I believe that the case has triple glass. I think the glass is about 30″ long and 15″ or 18″ high. Would it be possible to get plates for this and if so, where would you recommend getting them?

ANSWER: Ice cream cabinets have been used by quite a few people for freezer cabinets in which to store or freeze frozen foods, and in most cases, no attempt was made to change them from their present set-up. In other words, the brine would not have to be removed and the freezing can be done right in the ice cream holes.



Par Model HW-30

- A 3 H.P. water cooled unit for locker plants, ice cream plants, super markets and multiple water coolers.
- Four cylinders, large capacity, slow speed, crank type compressor with bull's-eye sight oil gauge.
- The fast pull down and high capacity features of this unit assure economical refrigeration.
- *Write for illustrated brochure of details.*
- *BY COMPARISON—YOU'LL BUY PAR.*

PAR Division

LYNCH MANUFACTURING CORPORATION
Defiance, Ohio, U.S.A.

Of course, this type of freezing could not be termed "sharp freezing," because sharp freezing takes in the element of time and is usually accomplished by having the food in direct contact with the evaporator, such as a cold plate. The freezing then is done mostly by conduction rather than convection as will be the case in the ice cream cabinet.

These cabinets are very suitable for the storage of frozen food because temperatures of zero can be maintained very readily. The display part of this cabinet may not be so suitable for long time storage because it is doubtful whether the temperatures can be held as low as zero. It would be possible, I would think, to insulate over the glass sections of the display—thus, making it possible to hold the lower temperatures.

The Freon can be substituted for methyl chloride, providing you are sure there is no aluminum anywhere in the system. It may be necessary to step up the speed of the compressor approximately 10%, but apart from changing the adjustment of the controls, there should be little other trouble in the changeover.

THOROUGH CLEANING NEEDED

QUESTION 595: The owner of a large ice cream and soda dispensing store has had considerable trouble with his counter ice cream freezing cabinets. There are two of them separated by a sink, each being a brine system with a Frigidaire float in each division. Both floats are connected to a one horse Kelvinator unit in the basement. I had been called in on the job only after their regular serviceman gave up in disgust. The trouble is with the floats. They clog up after a few hours, or if I am lucky, it will refrigerate for several days. The floats have to be taken out and cleaned as the needle holes become plugged.

I have just replaced the original strainer in the main line with a new one containing two screens and a felt, and have also placed a similar strainer on each line just about eight inches ahead of the float header. Before putting the strainers in the liquid line, I forced three gallons of carbon tet through each branch and the main line right back to the connection leading out of the liquid receiver. Each time I had occasion to take out the float, I wiped out all the sludge and blew out the header tubes with a heated tank of methyl. This did succeed in getting the oil and a lot of dirt out of the header boiler but I have come to the conclusion that the entire system will have to be cleaned as at the present time my liquid line is beginning to frost up which I take it is an indication of insufficient gas or a restriction. I know that the trouble is not lack of gas. Now what I would like to know is what is the best method of getting all the dirt out of this system? Would I have to take the boilers out of the brine tanks? If so, is there much brine to be drained out? I'd like to do a thorough job, even to the extent of boiling the condenser and receiver and redehydrating the entire system. Anything you can suggest that will help me in this situation will most certainly be appreciated.

ANSWER: Yes, it would be necessary to remove the boilers from the brine tank in order to make a thorough job of cleaning. Cleaning will probably have to be done by washing out all the parts and it would be impossible to remove all the washing solution from the boilers, unless they were removed from the brine tank.

The amount of brine to be removed depends on the size of the cabinet but it will not be necessary to remove all the brine, only a sufficient amount to lower the level below the flange of the boiler. This is in order to prevent the brine from running out the bolt holes of the boiler when you are ready to remove them. It is possible sometimes to syphon the brine out of the tank, but usually it is necessary to pump it out.

A small rotary hand pump such as is used around gasoline stations for pumping oil or kerosene from barrels is suitable for this purpose. Another type of pump commonly used is the small farm kitchen water pump.

Cleaning of evaporators is done best with carbon tetrachloride; however, since carbon tet is so difficult to obtain at the present time, you may have to resort to other solvents. One easily obtained solvent is a solution of water and Oakite which can be obtained from most any grocery store in your neighborhood, and which is commonly used in the automobile industry as a means of removing grease and paint from motor parts. The Oakite solution must be used hot, and it is usually necessary to boil the parts in the solution until all foreign matter is removed. This solution would be equally effective on the compressor parts where hard carbon has formed, making it difficult to remove.

If the parts are thoroughly drained and blown off with air while they are still hot, there is little likelihood of moisture remaining on them. Of course, dehydration of the system is necessary when assembling.

Let's get in a huddle..

..on your air conditioning problems

TO THOSE manufacturers who are contemplating a new line of air conditioning units after the war, Temprite Products Corporation extends an invitation to use its designing and engineering service.

Auxiliary equipment such as oil separators, heat exchangers, temperature control valves, etc., play an important part in the operation of air conditioning installations but very often no consideration is given to these important items in the design and construction of the basic equipment.

Field service problems are frequently created because of this practice and poor operation of the equipment or difficult and costly field service may result.

In order to insure a complete, well balanced, trouble-free air conditioning unit, the necessary accessories should either be an integral part of the system or provision should be made in the original design plans so that they can be conveniently installed at a later time. Temprite engineers are in a position to work with your designers on the application of standard accessories and, where these standard items do not meet the exact requirements, are able to evolve special designs for individual problems.

If your company can use the assistance of our staff of experienced refrigeration engineers—just write our sales department today and a "huddle" will be arranged at your convenience.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous *Liquid Cooling Devices*

45 PIQUETTE AVENUE • • • DETROIT, MICHIGAN

Survey Made of Refrigeration Service Facilities in Schenectady Area

TO determine whether adequate service is available for maintaining the refrigerator equipment in the area of Schenectady, N. Y., used for the preservation of food and the maintenance of public health, a survey has been conducted by George B. Gardner, president of the New York State Association of Refrigeration Service Engineers Society. The results of this survey are of interest to all mechanical refrigerator users in that area.

Approximately 32,000 refrigerators have been sold within the city, with an estimated 2,000 additional refrigerators, new and used, sold in the surrounding communities. This gives a total of 34,000 refrigerators and does not include those that were brought into the city by the influx of war workers in the past two years. Assuming that 4,000 refrigerators have been discarded because of failure beyond repair, an estimated 30,000 refrigerators are now in service in this area. This estimate can be substantiated by comparison to the number of electric meters (40,000) installed in Schenectady and Scotia. Each of the 30,000 refrigerators is a potential service problem for the refrigeration service facilities available in this area.

The following tabulation shows the types of commercial establishments in this area using one or more complete refrigeration systems. These figures have been taken from the New York Telephone Co. classified directory for Schenectady, released in December, 1943:

Food Markets	150
Restaurants, lunch rooms, etc.	210
Dairies	45
Confectionaries	52
Florists	25
Druggists	50
Apartments with remote Installations	25
Total establishments	557

In addition to the above there are schools, institutions, hospitals, packing houses, freezer cabinets, war plants with restaurant facilities, water coolers and industrial applications of refrigeration. This will increase the number of commercial establishments using refrigeration to about 600 and will add approximately 3,000 individual commercial refrigeration systems which are potential service problems to the previously estimated 30,000 domestic refrigerators.

At least 20 per cent of the service required on refrigerators is caused by failure of the electric motor. In order to get the refrigerator into service without delay the motor must be repaired or replaced. Replacement motors are not available on the present priority schedule and the motor shops can not give immediate service.

Decrease in Service Men

Prior to the war there were a minimum of 35 full time service men in the Schenectady area. Now there are only 15 men available for this service. Eight of these men spend approximately one half of their time in the city and the remainder in the surrounding area which would be within a circle having a seventy-five mile radius with Schenectady in the center. The responsibility for refrigeration service in the surrounding area falls upon the Schenectady service men because two refrigeration contracting companies which handle commercial service for packing houses, industrial equipment, apple storage, dairy farming, locker storage plants, refrigerated warehouses and state institutions are located within Schenectady. Four of the fifteen men available for service spend 50 to 75 per cent of their time on commercial refrigeration service and the remainder on domestic service. Thus there are only three full time men immediately available for calls for domestic service on the estimated 30,000 household refrigerators.

By comparison to other cities the manpower available for refrigeration service in Schenectady may appear to be adequate, but upon further analysis of the area covered and the utilization of manpower to afford refrigeration service to this area, it is evident that the service facilities available are definitely inadequate, particularly in the field of domestic service.

The refrigeration servicing field has a peak season in the late spring and early

Are you setting...

...your sights for Postwar Business?

TO THOSE MANUFACTURERS who are preparing now for the peace to come by "setting their sights" for postwar markets, the Tecumseh Products Company offer the services of their engineering department.

Tecumseh's engineering department is staffed with seasoned refrigeration engineers who are now working on developments that may be helpful to your peacetime planning. For example, manufacturers of refrigerators are anticipating a greater demand for both domestic and commercial refrigerators after the war. To meet this market CHIEFTAIN has designed units that fulfill the requirements of the smallest enclosures for apartment use up to room size storage units for farms, restaurants, hotels and large institutions.

If you are "setting your sights" for postwar markets, we invite you to write our sales department today for complete information on how CHIEFTAIN engineers can assist you in designing your new refrigerating units.

★ *When the peace is signed the leader will still be CHIEFTAIN* ★

Chieftain

TECUMSEH PRODUCTS CO.
TECUMSEH • MICHIGAN

summer when it is normally 50 per cent understaffed. Under the present conditions the manpower available for domestic service will be extremely limited during the coming peak season.

The State Technical Institute at Schenectady, N. Y., through the courtesy of the director, C. Thomas Olivo, and his assistant, William C. Jaeger, is organizing a refrigeration training program. The purpose of the program is to build up through training sufficient manpower to adequately meet the demands placed upon the refrigeration service facilities in this area. The first course will consist of approximately 75 hours of training on domestic refrigeration and will include classroom and shop work.

SURVEY OF EQUIPMENT

(Continued from page 23)

YORK CORPORATION, York, Pa., formerly York Ice Machinery Corporation —According to Mr. J. L. Rosenmiller, Manager of the Accessory Equipment and Maintenance Department, "Some of our equipment at one time did contain aluminum parts as given in the following: (1) On all compressors from 1/5 to 15 hp. of a Balanseal type, aluminum piston pin caps were used on compressors below serial No. 52000. On these compressors, it will be necessary to replace the piston pins with our present type before using them with methyl chloride. (2) Compressors of a V/W type, sizes 3¾" x 3", 5¾" x 4¼" and 6¾" x 5", should always be checked before using with methyl chloride as many of them did contain aluminum parts. Only positive method of doing this is to refer the serial number of an individual compressor to the factory so that the original data can be checked.

"The above are the only Freon-12 compressors on which we have used aluminum parts, etc., and while this is all mentioned in your survey, I do not believe you intended to confine your data to individual pieces of equipment. It is our belief that there are self-contained (packaged units) which do not contain aluminum, magnesium, zinc, etc. parts and which were originally designed for use with Freon-12, which should not be used with methyl chloride without making major changes.

"We have two units that would come under this classification, the DER-10 FlakIce unit and the cold weld water cooler and I am quite sure that other manufacturers will have some too. While it is entirely possible to make changes to these units at the factory so that they may operate on methyl chloride, it is our thought that such changes should not be attempted in the field by the average service man and therefore this information would be of considerable value to him."

RULES ON USE OF CONTROLLED MATERIALS CLARIFIED

RULES governing the use of controlled materials after they are received by a manufacturer have been clarified in an amendment to CMP Regulation No. 1, which deals with basic CMP allotment procedure, it was announced February 5 by the War Production Board's Controlled Materials Plan Division.

The amended Regulation permits a manufacturer to use surplus material to fill another authorized production schedule than the one for which the material was originally acquired, if he changes the original allotment account. Formerly, a manufacturer could only use such material to fill another authorized production schedule if the other schedule was identified by the same claimant agency letter symbol.

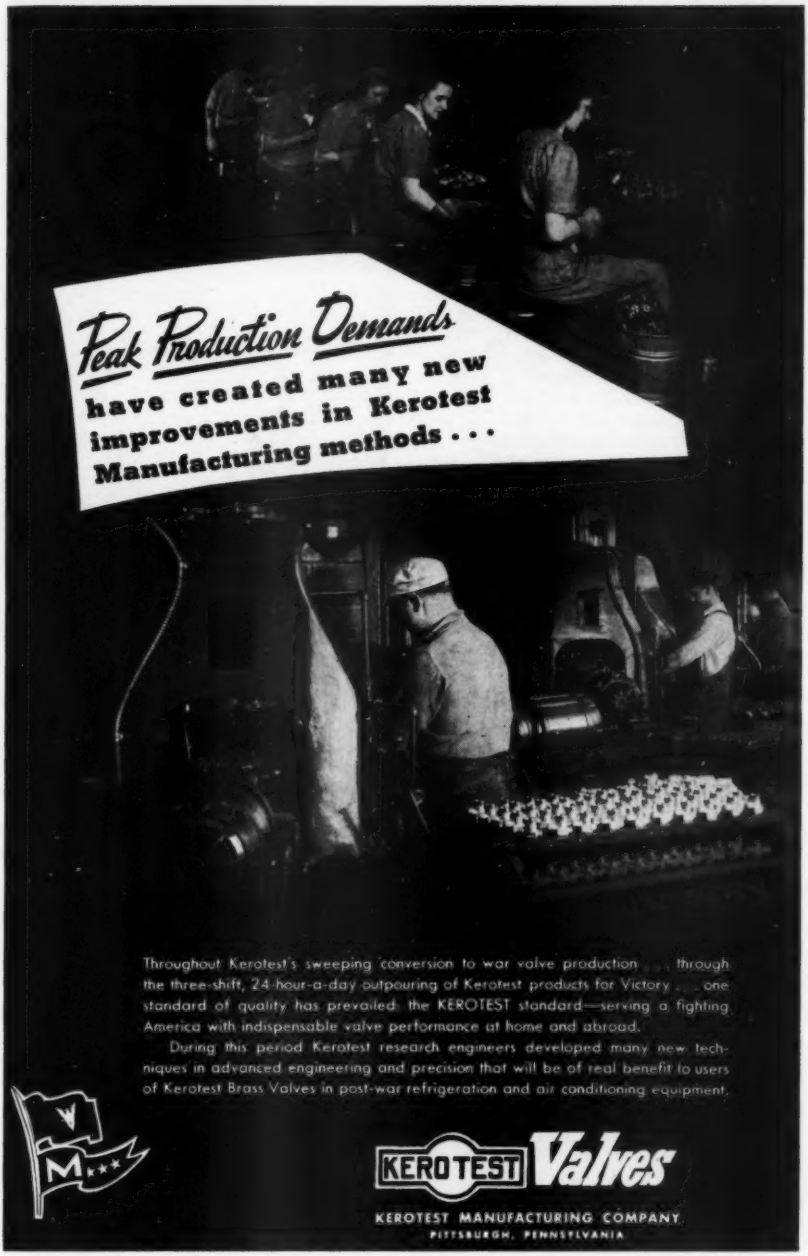
May Keep Common Inventory

The amended Regulation states that a consumer of controlled materials may keep such materials and Class A products received in a common inventory. In withdrawing from this inventory, he does not have to charge these products or materials against his allotment account.

Manufacturers operating under several production schedules do not have to maintain separate records for each schedule, if their usual records indicate that the production on each schedule is substantially in proportion to the amount of the allotments received for each schedule, and that their aggregate production of any product does not exceed the aggregate of the production schedules authorized.

Edward J. Maddalena,
Petaluma, Calif.

Your Trade Journal has been very helpful to me in my service and installation work. The many articles are well written and very understandable.


Peak Production Demands
have created many new
improvements in Kerotest
Manufacturing methods . . .
Throughout Kerotest's sweeping conversion to war valve production . . . through the three-shift, 24-hour-a-day outpouring of Kerotest products for Victory . . . one standard of quality has prevailed: the KEROTEST standard—serving a fighting America with indispensable valve performance at home and abroad.
During this period Kerotest research engineers developed many new techniques in advanced engineering and precision that will be of real benefit to users of Kerotest Brass Valves in post-war refrigeration and air conditioning equipment.
KEROTEST Valves
KEROTEST MANUFACTURING COMPANY
PITTSBURGH, PENNSYLVANIA

REFRIGERATION SERVICE COUNCIL ORGANIZED IN MILWAUKEE

AT a meeting of refrigeration service firms in the Milwaukee area, held in Milwaukee on February 29, a new organization, known as the Emergency Refrigeration Service Council, was organized, with the following officers: *President,* John J. Geering; *Secretary,* E. G. Fenton, of Roth Appliance Distributors; *Treasurer,* Al. Reinhardt, of Real Refrigeration Service Co. All of the officers are from Milwaukee. Geering will also act as co-ordinator of the new organization.

At this meeting fifteen refrigeration men were present, representing all of the leading makes of residential equipment, as well as several commercial refrigeration men. A service and supplies committee was appointed to investigate and facilitate the procurement of critical material during the present emergency. A refrigeration manpower committee was also appointed to investigate and arrange for the training of personnel and to handle personal matters in conjunction with the selective service boards, as a number of refrigeration men have been and are now being drafted for the army and navy. Another meeting has been scheduled for an early date.

S S S

REPAIR COURSE OFFERED

A THREE month course in refrigerator repairs, with the idea that the training may lead to permanent jobs, is now in effect in Tulsa, Oklahoma; offered to returning service men and others not eligible for the draft. The course was announced by Tom Burchart, assistant manager of the WMP commission's employment service at Tulsa. The trainees will be put to work in refrigerator repair shops in about two weeks after they start the course.

The classes are under the direction of R. B. McHenry, director of vocational education for the city schools. After two weeks of eight-hour classes in theory, the men will go to work at 50 cents an hour for six hours per day. They will spend an additional four hours daily in class work.

Burchart says there is such a serious shortage in repair men that Tulsa shops report they are running from 200 to 300 calls behind now and are working up to 18 hours a day. With the coming of warm weather and its greater load on home refrigerators the demand of course is expected to soar.

COPPER ELEMENT IN ACETYLENE TORCH DETECTS GAS LEAKS

By S. C. Spink*

AFTER refrigerating units have been crated and stored for some time, it is frequently desireable to test these units for possible gas leakage before shipments to the customer. Warehouses and distributors might wish to test the units in their stocks for gas leaks. Of course it is desirable to do this without uncrating the unit and without use of complicated shop testing equipment.

Fig. 1—Equipment for detecting gas leakage in crated refrigerator units. Gas siphoned from bottom coming in contact with copper loop causes flame to change from blue to green.

The ordinary acetylene flame in which is supported a loop of copper is used for this purpose. Fig. 1 shows the necessary equipment and how it is used. Just back of the gas nozzle a "T" connection is made so that a hose can be run from this "T" connection to a small hole perforated or drilled in the bottom of the crate holding the refrigerating unit. The gas flame is adjusted to give the normal blue flame. The hose from the "T" connection, which acts like a syphon, is then inserted into the hole in the crate. This acts to siphon any minute traces of gas in the crate and draw this gas into the burner.

This gas coming in contact with the copper element causes the flame to change from blue to green. Even minute traces of gas will give the flame a characteristic green color in the presence of the copper element.

* Westinghouse Elect. & Mfg. Co.

YEARS AHEAD
. . . but just in time

THE RECALIBRATOR

That "Recalibrator" is one of the most important advances ever made in gauge design. It's the first completely sound way to correct a gauge that has been knocked out of adjustment.

Fortunately the "Recalibrator" was ready and waiting when wartime conditions demanded harder, more dependable service from gauges and dial thermometers.

If a "Recalibrator" gauge is knocked out of adjustment, the twist of a screwdriver wipes out the error in just a few seconds. It makes the gauge accurate again at all points on the scale—something that has never been satisfactorily accomplished before. For gauges you can keep completely accurate, always look for the "Recalibrator" — the finishing touch to a fine gauge.

JAS. P. MARSH CORPORATION
2057 Southport Avenue, Chicago 14, Illinois

The "Recalibrator" is available in all Marsh Gauges, standard in all Marsh Dial Thermometers. It is typical of the advanced design you'll find throughout the broad Marsh line — all products of 75 years of specialization.

MARSH
Refrigeration Instruments

Refrigeration Service Engineers Society

Official Announcements of the activities of the International Society and Local Chapters appear in this department as well as articles pertaining to the educational work of the Society.

THE OBJECTS OF THE SOCIETY

To further the education and elevation of its members in the art and science of refrigeration engineering; for the reading and discussion of appropriate papers and lectures; the preparation and distribution among the membership of useful and practical information concerning the design, construction, operation and servicing of refrigerating machinery.

INTERNATIONAL HEADQUARTERS: 433-435 North Waller Ave., CHICAGO 44, ILL.

CANADIAN REFRIGERATION CONFERENCE

THE annual Canadian Refrigeration Conference, sponsored by the Interprovincial Chapter of the Refrigeration Service Engineers Society, will be held at the King Edward Hotel, Toronto, Canada, Sunday and Monday, March 19 and 20.

The slogan for the convention will be "Post-War Opportunities for the Service Man," and guest speakers will use this subject in their talks.

* * *

NEW CHAPTER BEING FORMED AT SAGINAW, MICHIGAN

A MEETING of the Flint Chapter was held at Saginaw, Mich., February 29, to perfect plans for the formation of the Chapter of the Society in Saginaw. Present at the meeting was Willis Stafford, chairman of the International Membership Committee. The meeting, attended by approximately 40 members and guests, was held at the Bancroft Hotel.

A considerable number of active refrigeration service men in Saginaw already were members of the Motor City Chapter at Flint. They had circulated a petition for a charter with about 25 signers. Mr. Stafford gave information regarding the organization of a Chapter and some practical suggestions in regard to getting the work started. It is believed that a very successful chapter will result from this meeting.

At the meeting also it was stated that members of the Flint Chapter are working on a program to rejuvenate the Lansing Chapter.

R.S.E.S. Chapter Notes

CHICAGO CHAPTER

At a special meeting of the outgoing and newly elected officers of the Chapter, a program of activities was developed that it is believed will attract a number of new members.

The educational feature of the coming meeting will be presented by Mr. Kaarlberg, of Trico Compressor Service and manufacturer of Chicago seals. He will install and demonstrate his Chicago seal on a Coldspot unit.

Mr. Kaarlberg is one of the original members of the Chicago Chapter.

Other events of the meeting will be: installation of newly elected officers; discussion of plans for a party; plans for the Chapter's part in the forthcoming membership drive.

After the meeting has been adjourned the boys will get together for a general gabfest, with beer and smokes furnished. Visitors are welcome.

Meetings are held on the second Tuesday of each month at the Danish Hall, 2519 W. Fullerton Ave.

Newly elected officers of the Chapter are: *President,* Harold R. Getty; *First Vice-president,* Myer Axelrod; *Second Vice-president,* A. J. DesRosiers; *Secretary,* Alex Gordon; *Treasurer,* Joseph Freed; *Sergeant-at-Arms,* Joseph Barys; *Directors,* H. D. Busby, John Habich, E. Deutschmann, F. H. Stevens, Herman Goldberg; *Chairman, Educational Committee,* Peter Bendl.

Worth Remembering!

No dilution-of-refrigerant worries with Thawzone. Only ⅛ of an ounce required for each pound of refrigerant. Wise refrigeration service engineers will remember that fact if someone tries to wean them away from Thawzone.

It costs little to use Thawzone. A 4-oz. bottle is $3 and treats 32 lbs. of refrigerant. That's less than 10c for each pound of refrigerant in the system. Compare!

If it had been nothing but an anti-freeze, Thawzone would never have been marketed. It's a dehydrant . . . destroys water chemically. And neutralizes acid too!

"A Little Goes a Long Way"

Time-tested Thawzone is not new. It's used by the Army, the Navy, refrigeration service engineers, refrigeration manufacturers, ice cream companies and others. Each year has seen a new sales record.

THAWZONE
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The PIONEER FLUID DEHYDRANT

HIGHSIDE CHEMICALS COMPANY
195 VERONA AVE.
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CENTRAL NEW YORK CHAPTER

January—The annual election of officers was held at the January meeting with Mr. Arthur Snyder being elected President and Ray D. Hursh being elected Secretary and Treasurer. A steak dinner held at Smith's Restaurant in honor of the new officers was enjoyed by all the members and their wives.

INTERPROVINCIAL ASSOCIATION

February 16—The meeting was entirely a business meeting of the executive officers. Reports received during the meeting included one from the membership committee given by the Acting Secretary to the effect that new applications for membership had been received and accepted. They were: T. J. Courey, Tilbury, Ontario, active membership; J. Little, Sudbury, Ontario, junior member and J. Dawson, Peterboro, Ontario, active membership.

W. Sneath, Chairman of the Boundary Committee, reported that the matter of boundaries had been taken up with the Maple Leaf Chapter and read a letter asking that the Association approve previously outlined boundaries of the Maple Leaf Chapter. G. Tindall, Secretary, was asked to obtain a report on the licensing or refrigeration men after the war and all information on the apprentice act obtainable. The forthcoming annual convention came in for a good deal of discussion and the registration fee was set at $1.00 at this meeting.

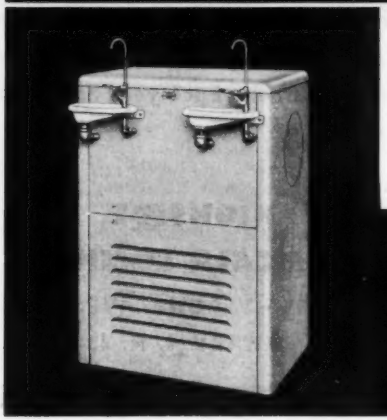
MAPLE LEAF CHAPTER

February 18—The meeting was presided over by President J. Spence. The major part of the evening was devoted to business. On reports received from committees, Educational Chairman, Mr. Marshall, urged all members to attend every educational meeting at the forthcoming annual conference.

A nominating committee was elected at this meeting and instructed to bring in a slate of officers for the next meeting, March 10, when the annual election of officers would take place. The committee consists of: H. F. Nye, Chairman; W. Marshall; K. Williams; C. Nimmens; K. Wood and E. G. Rice.

On the educational program for the evening, Mr. Marshall introduced the speaker, Mr. W. Garlick of Frigidaire Products of Canada. Mr. Garlick gave a short but instructive talk, then presented a very interesting motion picture on Frigidaire products.

NOW! DAY AND NIGHT WATER COOLERS
FOR WAR PLANTS AND
INDUSTRIAL CAFETERIAS



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ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems . . . The dependable liquid anti-freeze.

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Genuine Grunow

CARRENE METERS and FLOATS

Save time and money with reliable Grunow Meters and Floats—rebuilt to factory specifications and factory-checked by the only manufacturer of genuine, originally designed Grunow parts. Assures you trouble-free servicing. Send old parts when ordering.

● SEND FOR NEW, CONDENSED GRUNOW SERVICE MANUAL! PRICE 30¢

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FACTORY TESTED PARTS

4313 W. Fullerton Avenue, Chicago, Illinois

Officers and members of new Magnolia State Chapter Receive Charter. In the above picture are C. B. Lay, secretary; A. E. Shafer, chairman of the educational committee; B. L. Palmer, C. B. Gardner, L. H. Williford, Jr., president; J. G. Pollard, treasurer; E. A. Summer of Baton Rouge; J. P. Binns, S. C. Odom, C. W. Bowron, first vice-president; C. W. Hoxie, L. V. Duke, L. B. Brummett, I. C. White, J. B. Ray, Jr., F. B. Frazee, A. C. McCarty and J. C. Odum.

Officers, prominent members and guests of Mississippi Valley Chapter. Upper left. Retiring officers—C. L. Hartman, W. T. Cawiezell, E. J. Soens, D. S. Brainerd, F. A. Weatherby; seated, E. J. Ford, E. F. Meyer. Upper right: New officers—D. S. Brainerd, Verne Duncan, E. T. Sharpe, W. T. Cawiezell, A. B. Munchrath; seated, E. J. Ford, R. L. Felts, J. L. Fish. Lower left: Refreshment committee—Felts, Brainerd, Fish. Lower right: Committee and special guests.

MISSISSIPPI VALLEY CHAPTER

February—The following officers were elected at this meeting: *President,* E. J. Ford; *Vice-President,* J. L. Fish; *Secretary-Treasurer,* Robert Felts; *Sergeant-at-Arms,* D. S. Brainerd; *Board of Directors,* W. T. Cawiezell, Verne Duncan and A. B. Muchrath.

At the conclusion of the business meeting, Herman Goldberg gave an interesting talk. The refreshment committee provided a real feed of baked ham, fried chicken, potato chips, pickles, etc., and coffee.

MAGNOLIA CHAPTER

Twenty-seven charter members of the Magnolia State Chapter No. 1 have organized in Jackson, Miss. The charter was presented by E. A. Summer of Baton Rouge, La., who represented the Board of Directors of the International Association. Of the 27 charter members, 23 are active, there is one junior member and four associate members. Officers elected to head the new chapter are:

President, L. H. Williford, Jr.; *First Vice-president,* C. W. Bouron; *Second Vice-president,* S. M. Sansing; *Secretary,* C. B. Lay; *Treasurer,* Joe G. Pollard; *Chairman Educational Committee,* A. E. Shafer.

February 9—The meeting was called to order by President Williford and the business routine got under way. Arrangements were made at this meeting for a forthcoming educational program. Among the subjects to be discussed are: "How and Why of Thermal Protection" by Irby White; "V Belt Care" by S. M. Sansing; and "Lapping Plates and Seals" by Charlie Bowron.

YOUNGSTOWN CHAPTER

February 18—President Wright presided over the meeting which had an attendance of 29. Among the correspondence read in the business session was a letter from Mr. Kromer appointing E. S. Wright as coordinator for the training program in the Youngstown area. Some discussion took place on The All Industry Recognition Plan developed by Mr. Wright and a vote of appreciation was given him for his work in this plant. The personnel of working committees was announced at the meeting including six committees in all, part of which were to cover the training program activities; others covered activities in the Chapter.

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PRESSURE ACTUATED
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Individually tested for efficient operation—these valves may be mounted in any position and will give dependable, trouble-free performance. Brass body, two ply power bellows, and corrosion resistant materials for all parts. WL valves are available in ⅜ inch FPT and WP valves in ⅜, ½, and ¾ inch FPT.

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TYPE WP

VICTORY• REPLACEMENTS

• The Aerovox Victory Line of 30 universal types can take care of upwards of 90% of all motor-starting capacitor replacements. Handy Aerovox conversion chart indicates Victory equivalent for any previously available type. • Ask your jobber about these Aerovox Victory replacements. Ask to see the Aerovox conversion chart. • Or write us direct.

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INDIVIDUALLY TESTED
AEROVOX CORP., NEW BEDFORD, MASS., U. S. A.
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Just as an example of how alert the members of Youngstown are—a fire caused by an exploding oil stove completely destroyed the kitchen recently in a home in the Youngstown area. Paul Huber, a member of the Youngstown Chapter, beat the fire department to the scene of the fire by three minutes in order to attend the refrigerator, thus preventing escaping gas from hindering the work of the firemen.

LOS ANGELES CHAPTER

January—This meeting enjoyed the largest attendance ever experienced by the Los Angeles Chapter. It was a dinner meeting in honor of the installation of officers and a new high was established in many activities. For instance, a new high in the sale of stamps occurred and a total of $35.00 in defense stamps were sold for the door prize. In addition, a bottle of methyl chloride was passed around with each member being asked to make a guess at the weight. Tickets were sold with each guess and its weight and a prize was to be offered to the winner. The balance received out of the sale of guesses was turned over to the treasury. Jimmy Rodgers made the nearest guess of 2 lbs. 5½ oz., the actual weight being 2 lbs. 6 oz.

During the course of the evening, the entire membership took the oath of allegiance and received the obligation. The new officers took the oath on accepting their new office, and it was given by W. W. Allison, National Director. Upon accepting his office, each officer gave a short acceptance talk.

Jimmy Rodgers, past President, presented to W. C. Irving a solid gold wrist watch, which was engraved with a memento from the Chapter. It was given on behalf of the Los Angeles Chapter expressing their appreciation for the fine work he had done as President for the past three years. Although Mr. Irving is known for his ready wit, this was one time he did not have a word to say. After receiving the beautiful presentation, he asked to be excused from comment until he could collect his wits and regain his speech.

MADISON CHAPTER

February 10—The President announced that a meeting of shop operators had been held in cooperation with a plan of the War Manpower Commission to insure sufficient manpower for refrigeration service needs. Lee Miles gave a talk on the properties of the new refrigerant, Freon-22, and the subject was discussed by the members.

VIRGINIA CHAPTER

February 9—The Chapter held its annual installation of officers at Pine Tree Inn located in the suburbs of Richmond, Va. The following members were elected to office: *President,* Walter E. Booth; *Vice-President,* Stanley Young; *Secretary-Treasurer,* W. Lampie; *Correspondence Secretary,* David R. Dowdle; *Sergeant-at-Arms,* Solomon Linfield. A new board of directors was also installed.

Snapshots at Virginia Chapter meeting. Top: A group of members, wives and friends. Middle: Standing, Mrs. O. G. Snead, Miss N. Knight, Mrs. J. Preddy, Mrs. Louis Justa; sitting, Mrs. D. R. Dowdle, Mrs. R. W. Lampie, Mrs. W. E. Booth, Mrs. E. G. Martin. Below: Newly elected officers—W. E. Booth, president; Stanley Young, vice-president; R. W. Lampie, secretary and treasurer; S. Linfield, sergeant-at-arms.

Refrigerants have gone to war — are high on the list of vital materials. Don't let hidden leaks waste them.

***VISOLEAK* is composed of fine refrigerant oils colored and treated to penetrate every nook and cranny of the system, keeping a constant check for annoying, expensive hard-to-find leaks.**

If refrigerant can leak out, so can *VISOLEAK* and it will mark the leak with a dark red stain.

***VISOLEAK* is safe—safe with any refrigerant and effective with systems of all types. It is non-toxic, non-poisonous, non-corrosive and non-inflammable.**

***VISOLEAK* is economical—**

Wholesale Prices		Save 10% on case lots
4 ounce bottle	$1.00	48 bottles
8 ounce bottle	1.75	24 bottles
1 pint bottle	3.00	24 bottles
1 quart bottle	5.00	12 bottles
1 gallon can	16.00	6 cans

See your jobber or write for complete information

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Please send me complete details about *VISOLEAK*.

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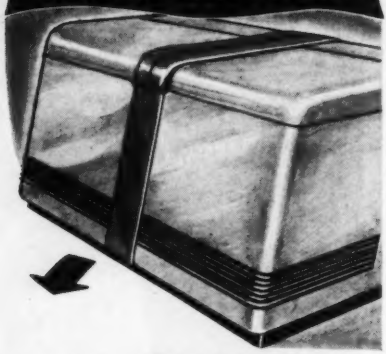

FOOD FREEZING IN EVERY FARM HOME

Tomorrow, the modern farm wife will freeze her own food. The choice of her finest vegetables, fruits, berries, beef, pork, poultry, game—kept in frozen storage—will add new meal variety, at lower cost, weeks and months after they're frozen.

Today, farmers are reading about the rich promises of the BEN-HUR FARM LOCKER PLANT. They'll be looking for its benefits when V-Day comes and the new BEN-HUR can be produced. Remember this—for your own post-war selling. It will be a volume market!

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634 East Keefe Avenue
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Today . . . Back the Attack with MORE WAR BONDS

. . remember . .

BEN-HUR

FARM LOCKER PLANTS

Following the meeting, an elaborate reception and entertainment was held in honor of the occasion. Orchestral music and local talent was provided for the evening. O. G. Snead, B. A. Hauck and Frank Magri, all members of the society and local musicians, played to the tunes of Hawaiian and Hill Billy music. The entertainment and music was broadcast throughout the Hall. Elmer Weeks and Ralph Lampie brought thunderous applause with their solos over the "Mike."

Many visitors were present together with a number of former members who have rejoined the society. The affair was the most spectacular and enjoyable ever sponsored by the society.

LONE STAR CHAPTER

January 12—Ray Polly of Ansul Chemical Co., who was present for the meeting, gave a talk on the availability of refrigerants, at the same time cautioning the members in changing from Freon to methyl chloride. Some discussion on the matter followed, after which W. D. Knox, Detroit Lubricator representative, gave a talk on expansion valves and their adjustments. Mr. Dodson of Frigidaire answered a number of questions pertaining to Frigidaire products.

Mr. McCollough of the Nash Kelvinator Division gave a brief talk on cooperation between service men and parts departments in the procurement and delivery of parts. Jimmie Gant of Chrysler Corp. warned service men to contact the factory, sending serial numbers of compressors and coils before making any change in Air Temp or Chrysler machines from Freon to methyl chloride.

Refreshments provided by Mr. Sparkman, Manager of the McKinley Refrigeration Supply Co., were served following the meeting.

ATLANTA CHAPTER

January 18—The educational program of the evening consisted of a motion picture and a talk on the Flakice Machine manufactured by the York Corporation. The talk was given by G. R. Bilderback and proved highly interesting to all those present. Other Chapters who would like this program can obtain it by contacting York Corporation in Atlanta, Georgia. Four new members were received during the evening. They are: G. R. Bilderback, Associate Member; Freddie B. Finch, Active Member; J. P. White, Active Member and Price H. Wileman, Active Member.

KANSAS CITY CHAPTER

January 5—The annual election of officers took place at this meeting with the following results: *President,* C. R. Visger; *First Vice-President,* M. L. Ferguson; *Second Vice-President,* W. F. Schreiber; *Secretary,* J. P. DeWilde; *Treasurer,* C. F. Wells; *Sergeant-at-Arms,* Floyd Haller; Board of Directors, R. F. Cox, R. E. Meeker and Geo. Rostock.

In winding up the business of last year, George Rostock was appointed Auditor and was asked to meet with Messrs. Wells and Ward to audit the books for the year. On the educational program for the evening, Chairman of the Educational Committee, Mr. Schreiber, conducted a discussion on "Moisture and its effect on gases." An announcement was made that the February meeting would include a discussion on refrigerants replacing Freon.

COLUMBUS CHAPTER

January—The greater part of the evening was taken up with the annual election of officers. Those elected were: *President,* Carl Toothaker; *First Vice-President,* C. W. Chaney; *Second Vice-President,* H. T. Yost; *Secretary-Treasurer,* Howard Grossman; *Sergeant-at-Arms,* Dave Little.

Following the meeting, the entertainment committee provided some real live entertainment for the Chapter which was topped off with a light lunch and beer.

TWIN CITIES CHAPTER

February 1—The meeting was held at the Frigidaire display room in St. Paul, and after a brief business session and a general introduction of all present had taken place, the meeting was turned over to Joe Parupsky of Frigidaire. Mr. Parupsky gave a very interesting demonstration, using a glass evaporator on the adjustment of expansion valves. Guests of the evening were the refrigeration class of the University of Minnesota.

SAN DIEGO CHAPTER

February 10—The meeting was held at Turner Hall. Twenty-six members and eight guests were present. Among the guests were several wives of members and a number of service men from nearby camps.

James I. Bailey, one of the members, gave a very interesting talk on repair and maintenance of electrical motors. They were then entertained with a talk on the formation and duties of the Seabees by Carroll Whitmer, U.S.N.R. Mr. Whitmer was

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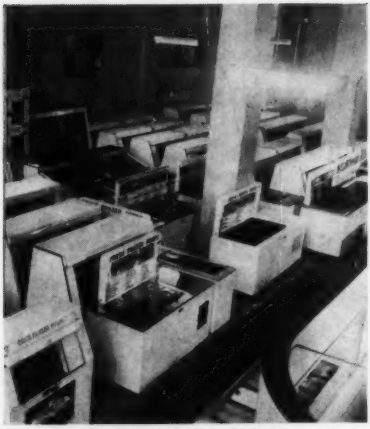

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among the first of the Navy Seabees. He was with the first troops that landed at Guadalcanal and spent several months there. After leaving there, he spent some time in New Zealand and then was with the first landing force on Tarawa. He was wounded and evacuated on the fourth day at Tarawa and is now in the U.S.N. Hospital in San Diego.

After a short business session, the meeting was closed and refreshments were served.

MILE HIGH CHAPTER

February 14—T. C. Ericsson made the suggestion that prizes of R.S.E.S. lapel buttons be given for the best memberships. Considerable discussion followed on what would constitute best membership, finally resulting in the appointment of a membership committee to work out the details and rules on which the prizes would be awarded.

The membership committee was then given eight new applications for membership, all of which were approved. Mr. McCombs explained briefly the government's sponsored training program for refrigeration service men. The meeting was highly interested in this program and devoted complete cooperation to anything done along the described lines.

Mr. Thompson of Nash-Kelvinator provided the educational feature of the meeting with a film on how ice cream units were made at the factory. It proved very interesting and educational.

CORN BELT CHAPTER

February 16—The General Electric Service Manual which was won by the Secretary at the January 13 meeting was presented to the Chapter as a start towards its own library. Carl Marcus informed the meeting that the Illinois Iowa Power and Light Co. had a file of service manuals in their basement to which all service men are welcome to refer. Progress on the constitution and by-laws of the Chapter was reported on. It was announced that they will be thoroughly discussed at the next meeting. Following the business meeting, Harvey C. Brown, instructor at Commercial Trades Institute, delivered a comprehensive talk on "Heat Load Calculations" accompanied by blackboard illustrations and examples. Mr. Brown dwelt on the finer points of making estimates and pointed out the fallacy of guessing the heat loads. Each member was provided with an outline and estimate sheet to aid in following the examples given.

TOLEDO CHAPTER

February 9—The meeting started with the acceptance of four new members to the Chapter who were: T. Benington, A. Murphy, T. Dipman and J. Fuss.

During the discussion of members now serving in the armed forces, the members expressed the wish that John Horvath, now in the army, be remembered with a cash gift of $5.00 from the Chapter. The motion was also made and carried that any other members now in the armed forces be likewise remembered.

The next subject discussed was the National Manpower and Training Committee for the refrigeration industry. The Chapter went on record as being in favor of cooperating with the program in every possible way. It was felt that much good could be derived from the work being carried on by the committee.

On the educational program, Mr. Bordner presented two films obtained from General Motors Co. entitled "Precisely So" and "Lest We Forget." A third film presented later on portrayed tank warfare on the African Desert.

TRI-STATE CHAPTER

Donald M. Young, President for two years of the Tri-State Chapter, resigned his office and entered service in the Navy. Mr. Young was in the refrigeration service business in Ashland, Ky., and is well known throughout the tri-state area.

Taking Mr. Young's place as President of the Tri-State Chapter is A. W. Albertsen, who for two years was Vice-President of the organization. Mr. Albertsen has been in the refrigeration service business in Huntington for many years. Other officers of the Chapter are: *Vice-President,* Monroe Chase, Point Pleasant, W. Va.; *Secretary,* Joe Campbell, Huntington, West Virginia; *Treasurer,* Claude A. Brunton, Huntington, W. Va.

TRI COUNTY CHAPTER

January 15—The meeting was held in the dining room of the Woodruff Hotel in Joliet where dinner was served to members and their wives preceding the meeting. Immediately after dinner, the meeting adjourned to the meeting room where a sound film portraying the manufacture of balsam wool in technicolor proved to be the interesting feature of the evening. After the showing of the moving picture, the ladies retired to a private club room and the business meeting

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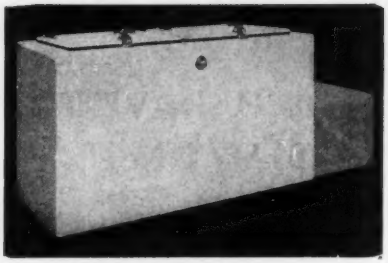

Model illustrated—No. C-1243
Capacity, 12.5 net cu. ft.
Holds up to 600 lbs. of frozen food

FARM LOCKER PLANTS . . .

Long before Pearl Harbor, thousands of farmers were already proving the rich benefits of the SANITARY QUICFREZ for freezing and keeping all farm-grown meats, poultry, game, vegetables, fruits.

They are saving food, time, transportation, and enjoying year 'round food variety, and a more healthful diet.

Sanitary dealers will not have to wait for engineering developments. They will be ready when production is permitted—with a product backed by a company already nationally recognized as one of the leaders in this field.

Sanitary Refrigerator Co.
Fond du Lac, Wisconsin

of the Chapter was presided over by Vice-President Fred Johansen.

The usual business routine followed, after which the annual election of officers took place. A nominating committee presented its recommendations and additional nominations were called for from the floor. The final outcome, however, was that the Secretary was instructed to cast one unanimous vote for the entire slate as presented by the nominating committee. The new officers are: *President,* Fred Johansen; *Vice-President,* Clarence Stumpf; *Secretary-Treasurer,* R. C. Marquis; *Sergeant-at-Arms,* B. V. Clark; *Board of Directors,* Harold Anderson, L. P. Millen and Merle Reichenbacher.

MISSOURI VALLEY CHAPTER

January 6—The meeting was held at the home of Mrs. Doyle. Most of the business session was devoted to winding up the affairs of the previous year. The annual election of officers resulted in the following being elected: *President,* Mrs. R. V. Melies; *Vice-President,* Mrs. A. W. Deits; *Secretary-Treasurer,* Mrs. C. M. Flohr; *Sergeant-at-Arms,* Mrs. G. M. Buckman.

Following the election, the new officers were immediately installed in office and social activities followed the meeting with refreshments being served.

Ladies Auxiliary

KANSAS CITY AUXILIARY

January 5—Following the business session of the evening, the ladies enjoyed going over Christmas cards received by the Auxiliary from sister Auxiliaries. However, a note of regret was added in learning that many of the cards which were to be sent out by the Auxiliary could not be sent because of a lack of addresses. A box of candy presented by C. R. Visger, newly elected President of the Kansas City Chapter, was enjoyed by all the members of the Auxiliary. The balance of the evening was devoted to business matters and the meeting adjourned.

TWIN CITIES AUXILIARY

February—The meeting was presided over by Mrs. Chermak, President of the Auxiliary. There was very little business conducted during the evening, so the time was devoted mostly to entertainment. Cards were played with prizes being offered and the men joined the ladies for coffee and cake after the meeting was over.

Have YOU Tried AIRO SUPPLY Lately?

Next time you "talk shop" with another Service Engineer, be prepared for that question! He and plenty more like him in all parts of the country have found out through personal experience that the AIRO slogan means what it says:

"You'll Like to Buy from AIRO Supply."

And that goes for you, too—wherever you're located. Send for your copy of the AIRO VICTORY Catalog, now.

AIRO SUPPLY CO., *Wholesale Distributors*

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NEW FREON-12 PLANT UNDER CONSTRUCTION

A NEW plant for the manufacture of "Freon-12" fluorine refrigerant is under construction at East Chicago, Indiana, it has been announced by Kinetic Chemicals, Inc. The plant is being built on property of the Grasselli Chemicals Department of the Du Pont Company, and the equipment going into it is being leased from the Defense Plant Corporation.

Chief reason for construction of the unit at this time is the demand by the Army and Navy for "Freon-12" for use in the war on malaria mosquitoes. The "Freon" fluid is mixed with an insecticide, such as pyrethrum, and packed in small cylinders. When a valve is opened the liquid escapes as a rapidly expanding gas and carries the mosquito-killer, in the form of a fine fog, into all corners of the room, tent, barracks or ship. This fog remains suspended 10 to 20 times longer than droplets from an ordinary mechanical spray and it is this longer contact with the mosquitoes that makes the "Freon" method so effective.

The East Chicago plant will have a capacity of approximately 2,000,000 pounds of "Freon" per month, and is in addition to a new plant at Deepwater Point, N. J., which is shortly to come into operation. The original "Freon" unit at the latter location has also increased its output. Demand for government use is still so great that civilian requirements cannot yet be supplied.

S S S

Virgil P. Brewer, Jr.,
Monroe, N. C.

The information in the R. S. E. is not only valuable, but makes one of the best reference files I know of.

PAUL B. REED LEAVES SERVEL TO JOIN PERFEX CORP.

FORMERLY service manager of the Electric Refrigeration and Air Conditioning Division of Servel, Inc., Evansville, Indiana, Paul B. Reed has joined the Perfex Corporation of Milwaukee, Wisconsin, as Manager of the Refrigeration and Air Conditioning Division.

PAUL B. REED, Perfex Corp.

In his new work, Mr. Reed will correlate the engineering, production and sales of Perfex' new line of refrigeration controls and accessories added to the Perfex line of general heating controls, stoker and oil burner controls, damper operators and others accessory devices, well known in the heating field. Perfex intends to not only build a line of refrigeration controls and accessories but also to lend assistance to their customers in the proper application of control apparatus and in all related problems.

In the 25 years since 1919 when Mr. Reed first enered the then infant electric refrigeration industry he has rubbed elbows with many refrigeration problems and will take

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this experience with him into the control field. He will continue to act as Chairman of the Wartime Educational Committee of the Refrigeration Service Engineers Society and as a member of the National Refrigeration Service Manpower Committee.

Temporarily his office will be in the Perfex engineering department building at 710 South Third Street and after March 1, his home will be 3432 North Downer Ave., Milwaukee.

* * *

PENETONE FOR DEGREASING

A DEGREASING and cleaning medium known as Penetone has been introduced by the Penetone Company, Tenafly, N. J. Besides its availability and efficiency, Penetone offers many other outstanding advantages, according to the manufacturers. Chief of these is its complete safety both from fire hazards and injury to operators. Many degreasers throw off obnoxious fumes irritating to the mucous membrane and many require the wearing of rubber gloves and aprons for protection to the operator.

Penetone, it is claimed, contains nothing that is toxic, inflammable or injurious to the skin. It is harmless, yet so effective that many manufacturers operating machinery have adopted it after exhaustive tests. It comes in two Formulae: the standard Penetone being suitable for more than 80 per cent of all applications including all degreasing jobs where the lighter types of greases and oils are used, as well as general maintenance. "Penetone Senior," a stronger concentrate, is recommended for use on heavy oils and caked-on greases. Another Penetone product known as "Major" is recommended for heavy duty degreasing.

TERHUNE JOINS JENNINGS

ANNOUNCEMENT is made by O. D. Jennings, president of O. D. Jennings & Company of Chicago, manufacturers of refrigerated vending equipment, of the appointment of E. A. Terhune as vice-president, assistant to the president, and a director of the company.

The Jennings Company is one of the oldest manufacturers of coin-operated machines in the country, having started in the business in 1906. The postwar operation will include considerable expansion in the production of refrigerated vending machines for bottled beverages, milk, fruit juices and other products, as well as a continuation of the production of various other types of coin-operated equipment which has heretofore been manufactured by the company.

Mr. Terhune recently resigned as sales manager of the electric refrigeration and air conditioning division of Servel, Inc., to take up this new position. He has been active in the refrigeration industry since 1926, when he joined the Frigidaire organization in New England and was retail sales manager. Subsequently he formed his own distributing organization, the Appliance Engineering Company, in Boston. He joined Servel ten years ago, operating first as eastern manager, and in 1939 was appointed sales manager, with headquarters at the factory in Evansville, Indiana.

* * *

The American Red Cross is training an additional group of volunteers, called dietitian's aides, to supplement the work already being done in the hospital by nurse's aides and Gray Ladies. Help the Red Cross maintain and increase its service on the home front by supporting the 1944 Red Cross War Fund.

OUR NEW 1944 REFRIGERATION PARTS CATALOGUE WILL BE READY APRIL 1ST.

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CHARLES R. LOGAN
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F. NEIL ROBSON
Superior Valve Co.

Charles R. Logan, who has represented the company in the eastern district for more than five years, will be in charge of this office.

F. Neil Robson, who has been in the factory sales office for the past two years, will assist Mr. Logan.

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REPLACEMENT
DOOR GASKETS
Your customers will always be satisfied with a JARROW gasket. Odorless and grease resistant.
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EXPANSION VALVES
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Automatic (any make)	$1.50
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COLD CONTROLS

Domestic	$2.25
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Arrange your sales outlet now.

Rogers Refrigeration Company

P. O. Box 325 Lockport, N. Y.

POST-WAR PLANS DISCUSSED AT SERVEL SALES MEETING

THE district managers and field engineers of the Electric Refrigeration and Air Conditioning Division of Servel, Inc., held a meeting at the factory in Evansville, Ind., from February 1 through February 12. At this meeting post-war plans of the division were discussed.

High light of the week-long series of sessions was a dinner held Wednesday evening during which talks were made by Louis Ruthenburg, president of Servel; Geo. S. Jones, Jr., vice-president in charge of sales; and Harry Newcomb, vice-president and assistant to Mr. Ruthenburg.

Also at the dinner the resignation of E. A. Terhune, sales manager of Servel's E. R. & A. C. Division was announced. Mr. Terhune goes to the O. D. Jennings Co. of Chicago as vice-president.

Louis Ruthenburg (Left), president of Servel, Inc., shakes hands with E. A. Terhune, sales manager of the Electric Refrigeration and Air Conditioning Division, at dinner held in Evansville, Ind., where Servel's E. R. & A. C. men held a week long meeting. Mr. Terhune has resigned his position with Servel to go to the O. D. Jennings Co. of Chicago as vice-president.

APPOINTED PAR SALES MANAGER

THE appointment of R. L. Sears as sales manager of the PAR Division of Lynch Manufacturing Corp., Defiance, Ohio, has been announced by Mr. Harry Pendergast, vice-president and general manager.

R. L. SEARS
Lynch Manufacturing Corp.

Mr. Sears was for 23 years associated with the Sherwin-Williams Company, Automotive Division, in various capacities; first in Texas as a district sales manager, then in Cleveland as sales manager of the automotive finishing business, and for the past two years as sales manager of all Sherwin-Williams business in six New England States. In his new position he will have charge of all sales of PAR air compressors and PAR condensing units which are distributed through jobber sales organizations.

NEW GRUNOW SERVICE MANUAL

GRUNOW AUTHORIZED SERVICE has published a new condensed service manual. The 28 page book clearly illustrates and describes every type of service operation, and servicemen will find it an easy guide to solving most every problem they encounter in Grunow refrigeration.

The new book presents a short but informative introduction on the theory of refrigeration; a description of the attributes of Carrene No. 1; and then a detailed description with illustrations of the principle of operation of the Grunow Refrigerator. The principal parts taken up are: Dehydrator, Check Valve, Float Valve, Carrene Meter-Receiver, Radiator-Condenser, Evaporator, Compressor Assembly, Motor and Electrical Unit. Also included are complete wiring diagrams of all models and all electrical units of each model.

Detailed descriptions for procedure on all important service operations are also given. These include: testing for leaks, using the leak detector, purging the system, checking the Carrene charge, thermostat adjustments, testing the relay, testing capacitor, testing transformer, removal, reinstallation and replacement of component parts, removal of unit, removal of compressor unit assembly, removal of condenser-radiator, removal of Carrene meter or float, removal of fan, removal of evaporator, and disassembly and reassembly of compressor unit assembly.

Copies of the new Service Manual may be obtained by writing Grunow Authorized Service, 4314 W. Fullerton Ave., Chicago, Ill., and mentioning this magazine.

S S S

NEW V-BELT DRIVE CATALOG

THE DAYTON RUBBER MANUFACTURING CO., Dayton, Ohio, has issued a new V-belt Drive Catalog No. 280, containing much valuable and comprehensive information and data. Consisting of 384 pages, it contains drive selection tables that list millions of drive combinations, relieving the necessity of all calculations, engineering and complicated formulas. Practically the entire field of information about V-Belt Drives is contained in this one compact volume. It is completely indexed and arranged for quick and easy use.

S S S

Lee A. Miles
Madison, Wis.

You have a great informative magazine. Keep up the good work.

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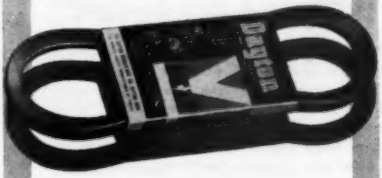
FOR ALL LEADING MAKES OF HOUSEHOLD APPLIANCES
In the interest of conservation, see that Victory Vital V-Belts are properly installed with rust-free pulleys in correct alignment and with proper tension.



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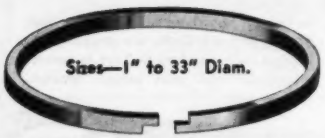

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WITH warm weather the going will become really tough. Fewer men, you know, to do more work. But with a good, dependable jobber to furnish replacements and materials, much of your problem will be solved. Make your arrangements NOW.

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